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BIOLOGIA

CENTRALI-AMERICANA.

INSECTA.

HYMENOPTERA.

(FAMILIES *TENTHREDINIDÆ—CHRYSIDIDÆ.*)

VOL. I.

BY

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SMITHSONIAN INSTITUTION
C
284623
U. S. NATIONAL MUSEUM.

1883–1900.

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INTRODUCTION.

THIS Volume includes an enumeration of the species of fifteen Families of Hymenoptera: four of the section Sessiliventria—Tenthredinidæ, Cephidæ, Siricidæ, and Oryssidæ; and eleven of Petioliventria—Cynipidæ, Figitidæ, Chalcididæ, Ichneumonidæ, Braconidæ, Stephanidæ, Evaniidæ, Trigonalidæ, Pelecinidæ, Proctotrupidæ, and Chrysididæ. It was commenced by Mr. Cameron in 1883, and concluded in 1888, a brief supplement containing a list of the species described or recorded by him elsewhere from Central America having been added last year. The material examined was mostly from Guatemala or the State of Panama, but little from Mexico having been received by us at that time; hence very few of the numerous Mexican forms of Ichneumonidæ, &c., described by North-American writers were represented in our collection. Since then Mr. H. H. Smith has obtained for us a vast number of specimens from Mexico of nearly all the above-mentioned Families; it is, however, quite impossible for us to deal with this immense amount of additional material now, which would necessitate a fresh study of the entire subject and a revision of the whole work. We are therefore reluctantly compelled to close this Volume as its stands, and trust that Mr. Cameron's "Contribution," incomplete as it must be as regards the total number of species inhabiting the region under investigation, has added considerably to our knowledge of these interesting insects.

Altogether 1109 species are enumerated, of which 596 are treated as new, the total number for each Family being as follows:—Tenthredinidæ, 152, with eighty-three new; Cephidæ, one; Siricidæ, three, with one new; Oryssidæ, two, with one new; Cynipidæ, fifteen, with six new; Figitidæ, five, with three new, and two new genera; Chalcididæ, 121, with seventy-one new, and eleven new genera; Ichneumonidæ, 533, with 209 new, and three new genera; Braconidæ, 176, with 157 new, and four new genera; Stephanidæ, five, with three new; Evaniidæ, twenty-three, with sixteen new; Trigonalidæ, nine; Pelecinidæ, two; Proctotrupidæ, forty-three, with thirty-five new; Chrysididæ, nineteen, with eleven new, and one new genus.

ED.

August 1900.

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* *Strongylogaster fuscipennis* on the Plate.
† *Blennocampa cærulea* on the Plate.
‡ *Didymia biramosa* on the Plate.
§ *Ptilia imitatrix* on the Plate.
‖ *Didymia versicolor* on the Plate.
¶ *Laloceras klugii* on the Plate.
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* *Leucaspis mexicana* on the Plate.

† *Phasgonophora rufitarsis* on the Plate.

‡ *Schizaspidia flaviventris* on the Plate.
Schizaspidia furcata on the Plate.

‖ *Orasema flavipes* on the Plate.

¶ *Paralœstethia mandibularis* on the Plate.

** The figure of *Pharsalia albofacialis*, Tab. XVII. fig. 15, must be erased, the insect not being described in this work (*cf.* p. 473).

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* *Mesostenus nicaraguensis* on the Plate.

† *Pimpla coxator* on the Plate.

‡ *Thyredon* on the Plate.

§ *Ophion thoracicus* on the Plate.

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* *Ephiosoma mexicanum* on the Plate.

† *Nonus niger* on the Plate.

‡ Not described in the text, and perhaps not really the ♀ of *B. albipalpis*.

§ *Iphiaulax capetillensis* on the Plate.

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ERRATA ET CORRIGENDA.

Page	Line	
10	1	for **melanosoma** read **melanostoma.**
10	21	for *melanosoma* read *melanostoma.*
12	31	for **leucosoma** read **leucostoma.**
14	17	*for* Angang *read* Angangueo in Michoacan.
14	24, 35	*for* Cuantla *read* Cuautla.
25	9	for *testaceiceps* read *testaceus.*
28	16	for *A.* read *S.*
30	1	for *mexicana* read *mexicanus.*
32	12	for **leucosoma** read **leucostoma.**
32	29, 35	for *leucosoma* read *leucostoma.*
32	36	*before* Tab. II. fig. 10, ♀, insert *B. cœrulea,*
34	1	*for* PŒCILOSOMA *read* PŒCILOSTOMA.
34	9	for **Pœcilosoma** read **Pœcilostoma.**
36	1	after **basimacula.** add (Tab. XX. fig. 14.)
65	1	after **rufiventris.** add (Tab. IV. figg. 4, 4 *a*, *b.*)
66	26	after **facialis.** add (Tab. IV. fig. 5.)
70	11	*for* Karsh *read* Karsch.
74	4	*for* Atitan *read* Atitlan.
78	12	for *Halcitella* read *Halticella.*
78	13, 18	for *Phasgonophora* read *Phasganophora.*
91	10	*for* 5. *read* V.
96	25	*for* XIV. *read* IV.
102	14	for *luteogaster* read *flaviventris.*
103	4	*before* Tab. V. insert *Schizaspidia furcata,*
144	27	after **mexicanus.** add (Tab. VIII. fig. 1.)
144	30	after **suffultus.** add (Tab. VIII. fig. 2.)
166	22	for **trunculentus** read **truculentus.**
259	1	for **leucosoma** read **leucostoma.**
269	1	*for* XX. *read* XI.
277	28	after **grallator.** add (Tab. XII. fig. 7.)
390	17	*for* ♀ *read* ♂.
391	27	*after* fig. 23, ♂, *add* ; Tab. XVII. figg. 1 *a–c.*
421	16	*for* Buguba *read* Bugaba.
444	15	after *Hab.* add GUATEMALA, Mirandilla (*Champion*);
455	35	*after* MEXICO *add* , Cordova.
467	23	*for* 1. *read* 3.
470	19	*after* IBALIA (to follow the genus *Anacharis*), add beneath *Ibalia*, Latreille, Gen. Crust. et Ins. xiii. p. 205 (1805).

595.79

BIOLOGIA CENTRALI-AMERICANA.

ZOOLOGIA.

Class INSECTA.

Order HYMENOPTERA.

SESSILIVENTRIA.

Fam. TENTHREDINIDÆ.

Subfam. *TENTHREDINA.*

This subfamily contains the Sawflies, which have two radial and three or four cubital cellules, of which the second (or first when there are only three) and third (or second when only three are present) receive each a recurrent nervure, both recurrent nervures never being received in one cellule; the lanceolate cellule is never petiolate; the antennæ usually 9-jointed, more rarely 7–15-jointed; and the larvæ have twenty-two legs.

TENTHREDINIDES.

This group includes the species which have the posterior spurs longer than one third of the length of the metatarsus; the antennæ are 9-jointed; the mandibles are large, acute, and provided with two or three teeth, besides the apical one. The wings have two radial and four cubital cellules, while the lanceolate cellule has usually a short straight nervure: very rarely there is an oblique one; and not uncommonly it is subcontracted; in no case is it petiolate. The basal nervure is joined to, or received very close to, the cubital. The larvæ are never ornamented to any extent; the vast majority of them are some shade of green, brown, or black on the upper half of the body, the lower half being paler; most of them eject a brownish liquid from the mouth when alarmed. The pupa state is passed in the earth, protected by an earthen cell, which may or may not be strengthened by silk. Although this subtribe is very numerously represented in the Nearctic Region, where the species are very numerous, one hundred and thirty-nine being recorded in Kirby's Catalogue, yet only one species is known from the Neotropical Region.

MACROPHYA.

Macrophya, Dahlbom, Conspectus Tenth. Siri. et Oryss. Scand. p. 4.

The species of this genus have a wide geographical range. Fifty species are known from the European fauna, principally from the south; they also occur in Japan, in the Oriental Region as far south as Southern India, while thirty-eight species inhabit North America.

1. Macrophya trisyllaba.

Allantus trisyllaba, Norton, Trans. Amer. Ent. Soc. i. p. 273; Cat. of the Tenth. and Urve. of N. Am. p. 136 [1]

Macrophya trisyllaba, Cresson, Trans. Amer. Ent. Soc. viii. p. 61 [2].

Hab. North America, Canada [2], United States [1].—Mexico [2].

SELANDRIADES.

This section differs principally from the Tenthredinides in the mandibles being weak, short, and without subapical teeth, and in the spurs being shorter than one third of the length of the metatarsus. The wings have two radial cellules and three or four cubital; the lanceolate cellule has never a straight nervure, but may have an oblique one; usually it is contracted or petiolate. The posterior wings, with one or two genera, have two median cellules, more often only one or none.

The species of this group have a much wider range than the Tenthredinides; for they are found in the Australian, Ethiopian, and Neotropical Regions, from which the latter are altogether absent, except one species in the last-mentioned region.

SIOBLA.

Siobla, Cameron, Trans. Ent. Soc. 1877, p. 88.

This genus connects the Tenthredinides with the Selandriades. Most of the species have the body-form of *Tenthredo*, but differ otherwise in having the spurs much shorter, the transverse basal nervure received very close to, but not touching, the cubital nervure, and by the lanceolate cellule being much wider, and provided with a comparatively large oblique or semioblique cross nervure. It agrees very closely with *Strongylogaster*, from which it is only to be distinguished by the cross nervure in the lanceolate cellule. The general neuration is identical with that of *Eriocampa*; but the wings and body are more elongated, the antennæ are longer and filiform and have the third and fourth joints subequal, while in *Eriocampa* they are short and thick, with the third joint much longer than the fourth. The clypeus in *Siobla* is truncated or but slightly incised at the apex, and the eyes may or may not reach to the base of the mandibles. The mandibles are stout; the apical tooth is large and forms two thirds of the mandibles; there is a blunt, short, subapical tooth. The palpi are long; the basal joint of the

maxillary is small, the second is much shorter than the third and slightly shorter than the fifth, which is dilated at the apex, and is a little longer than the sixth, which is a little shorter than the second, the third is the longest; the basal joint of the labial palpus is the longest, the third and last are thicker than the others, the third is a little longer than the fourth and shorter than the second. The outer lobes of the labium are broad and truncated at the top; the inner lobe of the maxilla is straight on the outer side, more rounded on the inner, and curves gradually and roundly on the top; the outer lobe is long and narrow, and terminates in a sharp point.

Norton describes eight species under *Strongylogaster*, which are presumably to be referred to *Siobla*. He describes the males as having the hind wings provided with only one or no discal cellule; but I presume this is so through the nervures being situated along the edge of the wings. Some species, however, have undoubtedly two discal cellules as in the females.

Another North-American species is referred by Norton to *Macrophya*, just as a European species has been so referred, because the coxæ are rather large; but it seems impossible to use the size of the hinder coxæ as a generic character when dealing with *Neotropical* forms, however useful it may be when dealing with Palæarctic or Nearctic species; for it is impossible to draw the line between a moderately sized and an extra large one, so many intermediate forms occur.

Siobla is found in Japan, Burmah, West Yunan, Amoor, and Europe; and Kirby describes a species from Georgia.

1. **Siobla ornaticornis.** (Tab. I. f. 16, ♂; 16 *a*, antenna; 16 *b*, head, from the front.)

Nigra, antennarum articulis 6°–9ᵐ et basi, scutello, tegulis, pronoto, pleuris abdomineque subtus albis; abdomine superne nigro, segmentorum marginibus albis; pedibus rufescentibus, basi pallida; alis hyalinis, stigmate fusco, basi pallida.

Long. fere 11 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

The antennæ are filiform, shortly pilose, longer than the abdomen; third joint a little longer than the fourth, the third apical shorter than the preceding. Clypeus incised. Sutures on vertex very deep and distinct; frontal area a mere depression surrounding the lower ocellus. Antennal foveæ deep, but ill defined. Head broad, scarcely projecting behind the eyes, which are oval; the face is short. On the mesopleura there is a black perpendicular line beneath the tegulæ, and an oblique one commencing at the fore wing; the breast is black, as is also the greater part of the prothorax; the coxæ and trochanters are white, as are also the hinder tarsi; the four anterior tarsi are black at the apex. Claws simple. There is a thin transverse white line on either side of the postscutellum; the white lines at the junction of the abdominal segments above are wider at the sides. The wings are pilose; the costa is only black between the transverse basal nervure and the stigma; the transverse radial nervure is received

in the apical fourth of the wing, the transverse median a little in front of the middle of cellule; the third cubital cellule is a little shorter than the second; accessory nervure in posterior wing appendiculated.

In the male the breast is brown, black behind; the coxæ are marked with black at the base.

STRONGYLOGASTER.

Strongylogaster, Dahlbom, Consp. Tenthr. pp. 4, 13 (1835); Hartig, Blattw. p. 299.

The European species of *Strongylogaster* are only to be distinguished from *Selandria* by the former having the body "longish, cylindrical, and the costa not dilated before the stigma," while the latter has the body "short, thick, and the costa thickened and dilated before the stigma." These characters (not quite satisfactory even with European species) fail altogether with the Neotropical forms; and I have not been able to find other characters to distinguish them. I have not, however, united the two genera, but have, as a matter of convenience, retained *Selandria* for the species with short stout bodies. The species I have included in *Strongylogaster* differ in the form of the antennæ, some having them long, pilose, and slightly thickened beyond the middle, while with others they are short and thick; the eyes, too, may or may not reach close to the base of the mandibles; the metatarsus is longer than all the outer joints together, which is never the case with Palæarctic species; and the clypeus is truncated. The mandibles have a sharp apical tooth; there is only one subapical tooth, and its edge is curved. The basal joint of the labial palpi is the longest and thinnest; the second is nearly the size of the fourth; the third is the shortest, and is broader than the others. The maxillary palpi are long; the second and sixth joints are shorter than the intermediate, and nearly of equal length; the intermediate joints are also subequal; but the relative lengths of the joints vary.

Nothing is known about the habits of the American species of *Strongylogaster*; but the majority (and probably the whole) of the European species feed during their larval life on ferns. Nine European species are known, one from Japan, one from Siberia, another from Singapore, and twenty-one from America north of Mexico. America would thus seem to be the head quarters of the genus.

1. **Strongylogaster apertus.**

Tenthredo aperta, Kirby, List of Hymen. i. p. 320, t. 7. f. 16.

Hab. Mexico, Orizaba.

2. **Strongylogaster picticornis.**

Niger, albido-pictus, abdomine testaceo, dorso medio nigro, pedibus pallide testaceis; alis hyalinis, costa et stigmate testaceis.

Long. ♀ 8 millim., ♂ 6 millim.

Hab. GUATEMALA, Capetillo, San Gerónimo (*Champion*).

Antennæ longer than the abdomen, pilose, filiform, very slightly thickened in the middle; third joint thin; the basal joint and the apex of the fourth to seventh white; clypeus, labrum, palpi, and mandibles, except at apex, white. Clypeus incised, the sides acute. Eyes slightly converging. Frontal area and sutures on vertex flat; central fovea over antennæ deep, the lateral ones less distinct. Mesonotum black, save the scutellum and the greater part of the middle lobe, which are white; pleuræ white, a longish, broad, oblique stripe, a smaller broad one on mesopleura, and one over the middle coxæ slightly longer than broad, black; breast black in front, the black extending down the middle as a thin line, which joins a transverse broader line at the apex; the parts on each side of the central line testaceous. Abdomen testaceous, the greater part from the apex of basal segment black. Of the legs the coxæ and trochanters are white, the posterior trochanters are marked with black on the underside; the tarsi are paler than the tibiæ. The third cubital cellule is shorter than the second, wider at the apex than at the base, and receives the transverse radial nervure a little beyond the basal third of the cellule; the second cubital cellule has a horny point; the transverse median nervure is received a very little beyond the middle of the cellule. Accessory nervure in hind wing shortly appendiculated. The head is broader behind than in most of the species, and retreats on each side of the antennæ.

The male has the greater part of the breast testaceous, and the abdomen has no black on the upperside.

3. **Strongylogaster v-flavum.**

Niger, longus, flavo variegatus, antennis basi pedibusque pallide testaceis; femoribus posticis supra nigris; alis fusco-hyalinis, stigmate testaceo, cellula cubitali tertia longiore quam secunda. ♀.

Long. fere 10 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*), female; PANAMA, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

Antennæ shortly pilose, nearly as long as the abdomen, black, the three basal joints testaceous, the third about one third longer than fourth, fourth longer than fifth, the four apical subequal, the sixth thicker than the following. Clypeus incised, but not deeply; mandibles, palpi, labrum, and clypeus white; the apex of the mandibles black; the space between the antennæ and inner orbits of the eyes to a little above the middle testaceous. The borders of the middle lobe of the mesonotum broadly, a line (broadest behind) on inner side of lateral lobe, one proceeding from near the tegulæ to the scutellum, scutellum and postscutellum yellowish testaceous; tegulæ, pronotum, a large triangular mark on mesopleura, and an oblique line joined to the middle coxæ yellow; a round testaceous mark above posterior coxæ. The abdomen is testaceous, marked above with black transverse lines, which become broader and closer towards the apex. The coxæ and trochanters are white, the posterior coxæ black

behind on the upper half; the posterior femora are broadly black above and at the sides, the posterior tibiæ more or less black in the middle. The third cubital cellule is perceptibly longer than the second, which has a distinct horny point; the transverse radial is received not far from the third transverse cubital, the transverse median a very little in front of the middle of the cellule. There is a distinct bulla in the first transverse cubital nervure, and a less clearly marked one in the lower part of the transverse radial. The nervures are black, the costa and stigma testaceous.

What I take to be the male (from Chiriqui) has the coloration pretty much as I have described; but the antennæ are apparently shorter, and the third cubital cellule is perceptibly shorter than in the female*. The quantity of black on the posterior femora varies. In some specimens, too, the pleuræ are entirely testaceous; in others there is only an irregular splash in the centre. The amount of black on the back of the abdomen varies also.

4. **Strongylogaster illuminatus.**

Strongylogaster illuminatus, Norton, Trans. Am. Ent. Soc. ii. p. 222; Cat. p. 154. 18 ♂ ♀ [1]; Cresson, loc. cit. viii. p. 62.

Hab. Mexico, Cordova (*Saussure* [1]).

5. **Strongylogaster lætus.** (Tab. II. fig. 3, ♀; 3 *a*, antenna.)

Lætus, niger flavo variegatus, antennarum basi pedibusque flavo-albidis; femoribus posticis supra nigris; alis hyalinis, stigmate testaceo; cellula cubitali tertia breviore quam secunda. ♀.

Long. fere 8 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

The antennæ are pilose, not much longer than the abdomen, thick, distinctly attenuated and pointed at apex; basal joint not much longer than second, third not much longer than fourth; basal joint white, second, third, and base of fourth testaceous. Face and mouth yellow, the yellow extending above each side of the antennal fovea; clypeus slightly and broadly incised. On the thorax, the pronotum, a large triangular mark on mesopleura, a narrow one at the junction with the metapleura, the edges of the middle lobe of mesonotum, scutellum, a triangular mark behind it, and postscutellum are yellow; there is a fulvous line on each side of the scutellum (proceeding in the direction of the tegulæ), and a transverse one on either side of postscutellum. Abdomen fulvous-testaceous, a broad transverse band at base yellow; a broad transverse band next to the blotch, two narrower and interrupted ones behind it, and the greater part of the apical third above and beneath black; extreme apex and sheath yellow. The hinder femora are lined above with black; the rest of the legs yellowish testaceous. Costa and stigma testaceous, the lower half of stigma yellow; nervures black; the third cubital cellule is distinctly shorter than the second. There is a bulla

* This would appear to be a sexual character with the Neotropical Selandriades.

in the first transverse cubital nervure; the transverse median nervure is received a little in front of the middle of the cellule. The sutures on vertex are narrow, but deep; the frontal area clearly defined above, less so on lower side. The central fovea is very large, the lateral longer and deeper, but less clearly defined.

A shorter, broader insect than *S. v-flavum*, the antennæ shorter and thicker, the third joint shorter compared with the fourth; the cubital cell is shorter, the wings clearer, &c. In *S. lætus*, behind the eyes, there is thick fulvous hair, which becomes black on the vertex; the central antennal fovea is much more clearly defined than in *S. v-flavum*, but not the lateral ones.

6. **Strongylogaster inconspicuus.**

Selandria inconspicua, Kirby, List of Hymen. i. p. 190, t. 8. f. 24[1].

Hab. Mexico[1], Orizaba.

7. **Strongylogaster testaceicornis.**

Niger, antennis (apice excepto), ore, tegulis, linea tenui marginali pronoti, maculis pleuralibus, scutello, abdominisque basi testaceis; pedibus pallide testaceis, coxis basi, femoribus tibiarumque posticarum apice nigris; alis flavescentibus, costa et stigmate testaceis.

Long. 9 millim.

Hab. Costa Rica, Irazu 6000 to 7000 feet (*Rogers*).

Vertex faintly punctured, covered with a fulvous pile; frontal and antennal foveæ and sutures indistinct. The antennæ are shorter than the abdomen, thickened in the middle; the last joint considerably thinner than the eighth, the third longer than fourth. Clypeus slightly incised at the apex. On the mesopleura there is towards the hinder end a broad, obscure, testaceous spot; below it is an oblique thinner one following the division of the mesopleura; and there is a smaller one on the metapleura. The blotch is large and broad; the three basal segments are entirely testaceous at the sides and beneath; and at the apex of the second and third segments above, the testaceous colour forms two distinct bands. The transverse radial nervure is almost interstitial; the second and third cubital cellules are almost equal in length; the transverse median nervure is received close to middle of the cellule. Claws simple.

The male has the antennæ black above throughout, the middle joints are dark testaceous; the costa and stigma are dark testaceous; the basal segment of abdomen is broadly testaceous above; and the posterior tibiæ fuscous, except the basal third.

A much narrower and somewhat longer insect than *S. lætus*, with the vertex punctured, frontal area more clearly defined, face shorter, and thorax slightly punctured and more pilose.

8. **Strongylogaster pilicornis.** (Tab. II. fig. 1, ♀; 1 *a*, head, from the side; 1 *b*, from front; 1 *c*, claws.)

Niger, nitidus, pilosus, antennis longis, pilosis; facie, pronoto, metapleuris, abdomine (apice excepto) pedibusque luteis; tarsis posticis tibiarumque apice nigris; alis flavo-hyalinis, apice fusco, costa et stigmate testaceis.

Long. 11 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Head not transverse in front, sutures on vertex deep, frontal area small but deep, broader at apex than base, with a clear suture round the ocellus at the sides. Antennal tubercles large, projecting, lateral fovea small; central deep in the centre, from which it projects sharply before and behind. The antennæ are long, filiform, densely pilose, attenuated at the apex; basal joint with a short pedicle, which is white, more than double the length of the second; third joint a little longer than the fourth, the last joint longer and thinner than the eighth. Face from the antennal fovea, labrum, clypeus, and mandibles (except at apex) testaceous. The mesopleuræ are black, except a spot in front, below the wings, the metapleuræ yellowish; metanotum black; the three apical segments of abdomen and sheath, which is hairy, black. Wings large; nervures fuscous, darker at apex; the transverse radial nervure is received a little in front of the middle of the third cubital cellule; there is a bulla on the transverse radial and second and third transverse cubital; the transverse median nervure is received a little beyond middle of the cellule; a single spurious vein proceeds from the radial bulla, and a double one from that on the second transverse cubital, through the bulla on the third to the apex of the wing. The claws are bifid, the spurs a little more than one third of the length of the metatarsus, the posterior fuscous.

The largest of the Central-American species.

9. **Strongylogaster pilipennis.**

Luteus, capite (ore excepto), antennarum apice, mesonoto fere toto, sterno abdominisque apice nigris; alis nigris, medio flavo-hyalinis, stigmate luteo.

Long. $10\frac{1}{2}$ millim.

Hab. Chiriqui, David (*Champion*).

The sutures on the vertex are deep and wide, the frontal narrower and not so deep; the frontal area is not depressed; there is only an indistinct furrow round the lower ocellus; the central fovea is large, roundish, and shallow. The clypeus is almost transverse; it, as well as the labrum, is white; the apex of the mandibles piceous. The eyes project considerably, converge towards the lower side, and reach close to the mandibles. The head is large, retreats slightly in front and considerably so behind. The middle lobe of the mesonotum is testaceous; the lateral lobes are black, as is also the scutellum, except at the apex, where it becomes brownish. The metanotum is brownish testaceous. The transverse radial nervure is received in the apical third of the cellule;

the second cubital cellule is much narrower and longer than the third, and has a fuscous horny point; the costal cellule has a larger black horny point; the transverse median nervure is received a good piece before the middle of the cellule. The black basal portion of the wing ends before the termination of the costal cellule and at the horny point; the black apical part commences before the apex of the stigma. The accessory nervure in posterior wing is shortly appendiculated. The apices of all the tarsi (but especially the posterior) and the apex of the hinder tibiæ are black. The claws are bifid.

This species is not unlike *S. maculipennis*, but is easily known from it by the third cubital cellule being shorter than the second, the opposite being the case with *S. maculipennis*, by the apical half of the antennæ only being black, the fifth, sixth, and seventh joints not being produced at the apices; the face has less white, and the thorax less black; the apex only of the tarsi is black; and the transverse median cellule is received nearer the base of the cellule. The head, too, is much longer.

10. **Strongylogaster maculipennis.** (Tab. I. f. 8, ♀.)

Niger, nitidus, pilosus, facie alba; pronoto, metapleuris, abdomine (apice excepto) pedibusque luteis; tarsis posticis tibiarumque apice nigris; alis fuscis, medio flavo-hyalino, stigmate et costa flavis.

Long. 9–10 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet, Bugaba (*Champion*).

The antennæ have the two basal joints luteous, pilose, thickened from the fourth joint; the apex of sixth, seventh, and eighth produced into a blunt point beneath, more especially the sixth. The face from below the frontal area is white. On the thorax the greater part of the mesopleura and sternum are black, as is also the meso- and metanotum, except the angles of the lateral lobes. Wings with extreme basal part of costa luteous, the rest to near the stigma black; the transverse radial nervure is received near middle of cellule; the bullæ and spurious veins as in *S. pilicornis*; transverse median nervure received a piece in front of middle of cellule; the third cellule longer than the second, which is considerably angled where the recurrent nervure is received in front of middle of cellule. The apical fuscous cloud commences at the end of stigma; the basal one ends a little in front of median cellule; there is a small fuscous cloud at end of lanceolate cellule. In the hind wings the basal cloud is narrower than in front wings; there is a fuscous mark below the apex of anal cellule. The middle tarsi have the four apical joints black. In the second cubital cellule characteristic is the large horny point. The mesopleuræ are sometimes nearly all yellow. The vertex is raised; but the sutures are depressed equally to the eyes; the frontal area is not well defined. The lateral foveæ are small, and raised in the centre; the front is depressed considerably; the central fovea small but deep, and broader than long.

11. **Strongylogaster melanosoma.**

Luteus, antennis pilosis; antennis, capite, mesonoto, metanoto, mesopleuris pedibusque 4 posterioribus fere totis nigris; alis flavo-hyalinis, apice fusco.
Long. 8½ millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

The antennæ are as long as the abdomen and half of the thorax; the third joint is one fourth longer than the following, filiform, scarcely thickened towards the middle. Labrum brownish; three apical joints of palpi testaceous, the rest black. All the coxæ and trochanters are yellow; the rest of the four posterior legs are black, save the knees and metatarsi of the middle pair, which are testaceous in the middle; the anterior femora are lined behind with black; the tibiæ have a black line interrupted behind in the middle, the apex black all round; the tarsi black, save the basal three fourths of metatarsus. The transverse radial nervure is received a little in front of the middle of the third cubital cellule, the second recurrent is almost interstitial; and the transverse median is received in the middle of the cellule. Claws bifid. The vertex is considerably raised, especially behind the ocelli, there being also a depression between the two upper ones; the frontal area is raised, is longer than broad, round at upper end, where there is a small furrow leading into it; the apex is more angled at the sides, and transverse at the point. The lateral foveæ are large, the central fovea smaller and with a tubercle occupying it almost entirely. Eyes converging at bottom in front.

Besides the difference in the colour of the mouth and thorax, *S. melanosoma* differs from *S. melanocephalus* in having the transverse radial nervure received nearer the middle of the cellule, the second recurrent nearer the second transverse cubital, and the transverse median nearer the middle of cellule.

12. **Strongylogaster melanocephalus.** (Tab. II. fig. 2, ♀.)

Luteus, nitidus, pilosus, capite (ore excepto), meso- et metanoto fere totis, pedibusque 4 posterioribus nigris; alis flavo-hyalinis, apice leniter fumatis, stigmate testaceo.
Long. 10 millim.

Hab. GUATEMALA, Senahu in Vera Paz (*Champion*).

Frontal area large, rounded at apex, narrower at base. Lateral foveæ large, central one not indicated; but there is a semicircular suture above the antennal tubercle, which is large. Eyes converging. The antennæ are slightly longer than the abdomen and metathorax, somewhat thickened towards the middle, attenuated at the apex, and covered with a close, stiff, microscopic pile. The labrum, clypeus, and base of mandibles are white. On the mesonotum the outside of the middle and the lateral lobes are luteous, this being also the case with the metanotum at the sides. The anterior tarsi are fuscous at the apex; the rest of anterior legs pale yellow, as well as the four posterior coxæ; trochanters and base of femora, the knees, and middle tibiæ dull testaceous in front; all the spurs are pale luteous. The costa is dull testaceous; the nervures

luteous, except at the apex, where they are blackish. The head and thorax are covered with a close, stiff, white pubescence, which is especially long on the face; the legs also are pilose. The apical fourth of the abdomen is darker than the rest; but this may be an accidental discoloration. The apex of sheath black, pilose. The transverse median nervure is received beyond the middle of the cellule. The vertex is considerably raised, especially behind the ocelli, there being also a depression between the two upper ones; the frontal area is raised, longer than broad, rounded at upper end, where there is a small furrow leading into it; the lower end is more angled at the sides. The lateral foveæ are large, the central fovea smaller and with a tubercle occupying it almost entirely. Eyes converging at bottom in front.

13. **Strongylogaster nigriceps.**

Luteus, antennis, capite (ore excepto), abdominis apice, tarsis 4 posterioribus et tibiarum dimidio apicali nigris; alis flavo-hyalinis, apice fuscis, costa stigmateque testaceis, apice nigro.
Long. 9 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Frontal area very faintly indicated, ovoid. Lateral foveæ large, deep, with a small tubercle in the centre; central large, semicircular, with a minute tubercle at its apex. Eyes converging. Clypeus transverse. The antennæ are distinctly thickened in the middle, slightly attenuated at the apex, and pilose. The costa, stigma, and nervures are yellowish, save in the blackened apical portion, which commences in the middle of the stigma. At the lower part of the radial, and in the lower parts of the cubital and apical cellules, run spurious veins, which follow, to a certain extent, the course of the nervures, and pass through bullæ in the radial, third and fourth transverse, and second recurrent nervures; those in the cubital cellules originate in a single vein, which bifurcates a little beyond the second transverse cubital nervure. The anterior tarsi are fuscous at the apex, the middle and apex of middle tibiæ black.

Apart from the coloration, *S. nigriceps* may be known from *S. melanocephalus* by the longer and thicker antennæ, longer and more curved spurs, and stouter tibiæ and tarsi.

14. **Strongylogaster frontalis.**

Testaceus, antennis, capite pro parte, abdominis apice, tibiarum apice tarsisque nigris; antennarum basi, ore pedibusque albidis; alis fumatis, costa stigmateque nigris.
Long. 8 millim.

Hab. PANAMA, Bugaba (*Champion*).

The antennæ are rather slender, pilose, nearly as long as the thorax and abdomen; the third joint is not much longer than the fourth. The lateral furrows behind the vertex are deep; the lower ocellus is in a roundish depression. The lateral frontal foveæ are large and round; the central is much smaller. The clypeus is truncated. Behind the head is black; in front it is black along the inner orbits of the eyes above

and behind the ocelli; the mandibles piceous. The second cubital cellule is as long as the third to the transverse radial nervure; the transverse median is received in the middle of the cellule. The bullæ are as in *S. luteus*; and in one specimen the first transverse cubital nervure is completely absent. Claws simple; metatarsus longer than the other joints together.

This species is related to *S. luteus*; but differs in its shorter and, if any thing, broader body, more slender antennæ, longer metatarsi, much longer third cubital cellule, &c.

15. **Strongylogaster luteus.**

Luteus; antennis (basi excepta), capite, tibiarum apice tarsisque nigris, ore pedibusque albo-testaceis; alis fumatis, costa stigmateque nigris.
Long. 8 millim.

Hab. PANAMA, Bugaba (*Champion*).

The lateral furrows on the vertex are deep, especially behind the ocelli, but they do not extend back the whole length of the vertex; the central one is absent. The frontal area proper is not defined; but the lower ocellus is situated in a large hollow. The lateral antennal foveæ are large, deep, and circular; the central obsolete, or nearly so. The clypeus is truncated at the apex, and rounded at the edges. Mandibles piceous. The antennæ are a little longer than the abdomen and half the thorax; the basal joint has a pedicle, and is (not counting the pedicle) a half longer than the second; the third is longer than the fourth; the two apical are as long as, but thinner than the two preceding. The second cubital cellule is shorter than the third, and has a distinct horny point. There is a bulla in the transverse radial, in the first transverse cubital, and in the cubital nervure at its union with the first recurrent nervure. The transverse median nervure is received towards the apical third of the cellule. The metatarsus is nearly as long as the rest of the joints together. The claws are not bifid.

Allied to *S. tibialis*, *S. nigricornis*, and *S. meritorius*, but easily known from them by the entire absence of black from thorax and abdomen. It is also a larger and broader insect; and the transverse median nervure is received nearer the apex of the cellule than in any of the three.

16. **Strongylogaster leucosoma.** (Tab. I. fig. 7, ♀.)

Luteus, antennis pilosis; capite, antennis, tarsis 4 posterioribus et tibiarum dimidio apicali nigris; antennis basi oreque albis; alis fuscis, costa stigmateque nigris.
Long. $6\frac{1}{2}$ millim.

Hab. GUATEMALA, San Isidro (*Champion*).

Frontal area large, flat, but with the sides sharply defined. Antennal foveæ appearing as large shallow depressions. Clypeus slightly incised. Eyes almost parallel. Antennæ longer than the abdomen, thick, scarcely attenuated towards the apex, densely pilose;

second joint longer than broad, thicker at apex than at base; third joint about one third longer than fourth. Tegulæ testaceous. Third cubital cellule not longer than second, with one faint spurious vein; third transverse cubital nervure with two bullæ. There is a horny point in the costal cellule. The claws have a subbasal tooth; the anterior tarsi are fuscous.

Similar to *S. nigricornis*, but broader and shorter; the antennæ are white at the base, thicker, and a little shorter; the third cubital cellule is shorter than the second, and wider throughout than in *S. nigricornis*; the wings are darker; and the abdomen has no black dorsal band.

17. **Strongylogaster tibialis.**

Luteus, capite, antennis, macula mesonoti, abdominis apice, pectore, tarsis tibiisque 4 posterioribus nigris; alis fere hyalinis, costa stigmateque nigris.
Long. $8\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

Frontal sutures absent; frontal area scarcely indicated; but there is a distinct furrow round the lower ocellus. Lateral foveæ large, with a tubercle in the centre; central fovea much larger, and with a large square tubercle at apex. Eyes converging. Antennæ a little longer than the abdomen, thickened slightly in the middle, attenuated at the apex, pilose. Third cubital cellule a little longer and narrower than the second, and traversed by two spurious veins, which extend into the fourth cellule, where they end beyond its middle; another pair of spurious veins are in the discal (apical) cellule; the transverse median nervure is received before the middle of the cellule. Claws bifid; tegulæ testaceous.

A broader and somewhat shorter insect than *S. nigricornis*; the third cubital cellule is longer compared with the second; antennæ thicker in the middle, the second joint more globular, and not much thinner than the first, while in *S. nigricornis* it is much thinner, especially at the base; the spurs, too, are longer.

18. **Strongylogaster nigricornis.**

Rufus, capite, antennis, pectore, abdominis dorso medio, tarsis tibiarumque posticarum apice nigris; alis fere fuscis, costa stigmateque nigris; ore albo.
Long. 9 millim.

Hab. GUATEMALA, Dueñas (*Champion*).

Frontal area flat, the sides distinct, especially behind, where it is rounded; the apex is wider and truncated; lateral foveæ longer than broad, without tubercles; central fovea flat, nearly square, but rather broad at the apex. Apex of clypeus rounded. The clypeus, labrum, mandibles, and palpi are white. The antennæ are slightly thickened; the third joint thin, much longer than the fourth, thickened slightly at the apex; two basal joints thicker than it; the second thinner, especially at base, and a very little

longer than first; four apical joints much shorter than the others, and closely pressed together; accessory nervure in hind wings appendiculated. Legs pale at the base, apex of intermediate tibiæ and tarsi black. The second cubital cellule is longer and narrower than the third, which is double the width of the base at the apex; the second has a horny point; the transverse median nervure is received beyond the middle of the cellule. Claws simple.

The male has the apex of the abdomen black above and slightly at the base; sometimes there is a black longitudinal mark on each of the lateral lobes of the mesonotum. The black band on the dorsum of *S. nigricornis* is not continuous, being interrupted at the junction of the segments. From *S. ruficollis* *S. nigricornis* differs in its longer and thinner antennæ, the third joint especially being longer and thinner, and in the black posterior tarsi and apex of tibiæ; from *S. fuscipennis* it differs in the luteous pleuræ and metathorax, white mouth, and appendiculated accessory nervure in the hind wings.

19. **Strongylogaster fulviventris.** (Tab. I. fig. 13, ♀.)

Strongylogaster fulviventris, Norton, Trans. Amer. Ent. Soc. ii. p. 223; Catal. p. 154[1].

Hab. Mexico, Angang (*Saussure*[1]).

The frontal area is broad and not very deep; behind, the furrows meet at an angle; the apex slightly curved; a blunt ridge runs from the sides at the apex towards the eyes. The third cubital cellule is nearly one fourth shorter than the second.

20. **Strongylogaster meritorius.**

Strongylogaster meritorius, Norton, Trans. Amer. Ent. Soc. ii. p. 221[1]; Catal. p. 153, ♀ & ♂; Cresson, Trans. Amer. Ent. Soc. viii. p. 62.

Hab. Mexico, Cuantla, Tierra Caliente (*Saussure*[1]); Guatemala, San Gerónimo (*Champion*).

The frontal area in this species is sharply triangular; the sutures are deep, and proceed down the sides of the frontal area. The accessory nervure in hinder wing is interstitial; the transverse median is received nearly in the middle of the cellule; the second cubital cellule is distinctly longer than the third. *S. nigritorius* is a larger and stouter insect than it, and is easily separated from *S. meritorius* by its black breast and by the row of black dots along each side of the abdomen.

21. **Strongylogaster nigritorius.** (Tab. I. fig. 14.)

Strongylogaster nigritorius, Norton, Trans. Amer. Ent. Soc. ii. p. 222[1]; Catal. p. 154, ♀ ♂[1]; Cresson, Trans. Amer. Ent. Soc. viii. p. 62.

Hab. Mexico, Cuantla, Tierra Caliente (*Saussure*[1]).

The sutures on the vertex are deep; the frontal area is well defined and moderately

deep; behind it is rounded, but not broadly; in front it is truncated, and angled at the sides, and from each angle a ridge runs to the eyes, the space above this ridge being shallow; the eyes have a suture immediately behind them above. The mesonotum in front rises rather perpendicularly over the pronotum, as it does also with *S. meritorius*; the suture on the middle lobe is deep; it does not extend to the apex.

It is a stouter insect than *S. nigricornis*, which has the black marks on the dorsum continuous; its wings are darker, the third cubital cellule is longer compared with the second, while it wants also the black marks on the mesonotum.

22. **Strongylogaster fuscipennis.**

Rufus, capite, mesopleuris, metanoti medio, abdominis apice, tarsis tibiisque posticis nigris; alis fuscis, costa stigmateque nigris. ♀.
Long. 9 millim.

Hab. MEXICO.

Frontal area and furrows not very clearly defined, the former rounded and ridged behind, central antennal fovea deep, lateral indistinct; eyes oval, not reaching to base of mandibles. The transverse radial nervure is received in apical third of third cubital cellule, which is not much longer than broad, and much wider at apex than at base; there is a distinct horny point in the middle of second cubital cellule, which is longer than the third; the transverse median nervure is received a little beyond the middle of cellule; the accessory nervure in hind wing is very shortly appendiculated. The four anterior coxæ are pale, the posterior slightly darker, black at the base; the posterior knees are black; posterior tibiæ dark testaceous on underpart of basal fourth, the rest black; spurs testaceous. The ventral surface is marked with transverse black bands interrupted in the middle; on the basal half above there are fuscous transverse marks; the three apical segments are entirely black. The two basal joints of antennæ are black; the rest are wanting.

May be known from *S. tibialis* and *S. ruficollis* by the shorter and much wider third cubital cellule. From *S. nigricornis* the black mouth and pleuræ and much wider third cubital cellule distinguish it, as also the coxæ being marked with black.

23. **Strongylogaster ruficollis.**

Niger, ore albido; pronoto, mesonoto cum scutello, abdominis basi, tegulis pedibusque rufis; alis fuscis, stigmate et costa nigris. ♂ ♀.
Long. 8 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*), several specimens.

Front punctured, vertex smooth, shining, frontal area indistinct; three antennal foveæ large, round. Eyes oval. The antennæ are slightly shorter than the abdomen, stout, shortly pilose; the third joint one fourth longer than the fourth; the apex scarcely attenuated. Clypeus transverse. Usually the middle of the three basal segments of abdomen is dull red; but the red colour may extend over the whole of

the basal segments, as well as the metanotum. The transverse radial nervure is received in the apical fourth of the cellule, and quite close to the third transverse cubital; the transverse median is received beyond the middle of the cellule; the accessory nervure in hind wings is shortly appendiculated. The third cubital cellule is longer than the second. The colour of the legs is paler than that of the thorax. Claws simple.

24. **Strongylogaster diversipes.** (Tab. I. fig. 5.)

Selandria diversipes, Kirby, List of Hymen. i. p. 189, t. 8. f. 22.

Hab. MEXICO, Orizaba; COSTA RICA, Irazu 6000 to 7000 feet (*Rogers*); PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

The antennæ are longer than the abdomen, stout, minutely pilose, the joints (especially the apical) produced at the apices beneath, the third joint longer than fourth. The frontal sutures and the area are subobsolete; the lower ocellus is bounded behind by a deep triangular furrow; the foveæ are large, moderately deep; the outer round, with a small tubercle in the centre, the central larger and more irregular in shape. The third cubital cellule is long and narrow, longer than the second, which is a little longer than the fourth, and has a horny point; the transverse median nervure is received close to centre of cellule. The claws are bifid. The amount of reddish white on the thorax varies. The palpi are blackish in all my specimens; and the labrum is sometimes black.

25. **Strongylogaster nigricans.**

Strongylogaster nigricans, Norton, Trans. Amer. Ent. Soc. ii. p. 223; Catal. p. 155 [1].

Hab. MEXICO, Cuantla, Tierra Fria (*Saussure* [1]); GUATEMALA, San Gerónimo (*Champion*).

Frontal area large, deepest in the centre below the ocellus, truncated at apex at sides, rounded behind; from the sides at apex runs a ridge in the direction of the eyes; lateral fovea scarcely indicated, central large. Eyes converging. Third joint of antennæ a little longer than the fourth, the middle joints thickened, apex attenuated; second joint longer than broad, not globular. Palpi black. Coxæ at base black, the rest white. Posterior femora entirely black, except at extreme base and apex, middle pair lined with black on both sides; the anterior have more white in front. Apex of four anterior tibiæ behind and at extreme apex all round, black; posterior with apical third black all round. Four anterior tarsi fuscous black, except on metatarsus; posterior tarsi black, the metatarsus white at base; spurs black. Wings with a smoky tinge; transverse radial nervure received very close to third transverse cubital; third cubital cellule a little longer than second; transverse median received a little beyond the middle of the cellule.

The Mexican specimens have the four anterior legs almost devoid of black, and the posterior legs have less black than in the Guatemalan specimens I have described above; the latter agree with Norton's variety.

26. **Strongylogaster lineatus.**

Strongylogaster lineatus, Norton, Trans. Amer. Ent. Soc. ii. p. 223[1]; Catal. p. 155.

Hab. Mexico, Angang (*Saussure*[1]).

27. **Strongylogaster nigredo.**

Strongylogaster nigredo, Norton, Trans. Amer. Ent. Soc. ii. p. 223[1]; Catal. p. 155.

Hab. Mexico, Toluca (*Saussure*[1]).

This species is closely allied to *S. nigricans*, but may readily be known from it by the black mouth, collar, and tegulæ, by the black hinder legs and coxæ, the four anterior legs, too, being for the greater part black. The third cubital cellule is shorter and much wider than the second; the transverse median nervure is received beyond the middle of the cellule. The frontal area is clearly defined by ridges; it is truncated behind; at the apex the sides are angled; and from the apex of the angle runs a ridge towards the eye; the apex is straight; the head projects behind the eyes. The amount of white on the anterior legs appears to vary.

28. **Strongylogaster bicolor.** (Tab. II. fig. 4, ♀; 4 *a*, saw.)

Niger, ore, tegulis, linea pronoti, femoribus, tibiis tarsisque albis, tarsis posticis tibiarumque apice nigris; clypeo exciso; alis fere hyalinis.

Long. fere 10 millim.

Hab. Guatemala, Dueñas (*Champion*).

Frontal area indistinct above, the sides more clearly indicated at apex; from the apex runs a ridge to the eyes as in *S. lineatus*; lateral foveæ appearing as longish furrows from this ridge; central large. Eyes converging. Antennæ as long as the abdomen, thickened in the middle, attenuated at the apex; clypeus sharply incised in the middle; palpi blackish. Legs white; base of coxæ, a line behind on the four anterior femora and tibiæ, apical three fourths of posterior femora, apical third of hinder tibiæ, and tarsi black, save at base; apex of anterior tarsi fuscous; spurs black; claws bifid. The transverse radial nervure is received at apical third of cellule; second cellule longer than third; the accessory nervure in hind wing interstitial. The vertex is punctured. On the base of abdomen is a thin white line.

Differs from *S. lineatus* in being larger, in having the antennæ longer, clypeus incised, wings clearer, and transverse radial received further from third transverse cubital. *S. nigricans*, again, has the antennæ "slender, not longer than the thorax."

SELANDRIA.

Selandria, Leach, Zool. Misc. iii. p. 126 (1817); Hart. Blattw. p. 263 (1837).

Twenty-five species are referred by Kirby (List of Hymenoptera, p. 187) to this genus—fourteen from Europe, two from North America, three from Brazil, and six from Mexico; but two of these latter I have transferred to *Strongylogaster* *.

1. Selandria luteola.

Nigra, abdomine pedibusque rufo-luteis, ore albido, coxis, trochanteribus, femoribus basi, tibiarum posticarum apice tarsisque nigris; alis fumatis, costa et stigmate fuscis.
Long. 4–5 millim.

Hab. Panama, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

The antennæ are stout, as long as the abdomen, the third joint is much longer than the fourth; the eyes converge on the lower side in front, and reach to the base of the mandibles; the frontal area is obsolete, the antennæ are widely separated, the lateral sutures on the vertex wide, but not deep; the antennal foveæ round, large; clypeus hairy, transverse, palpi white; the head retreats behind the eyes. The first transverse cubital nervure is subobsolete; the second cubital cellule is a very little longer than the third, which is longer than the fourth; the first recurrent nervure is received a little in front of the middle of cellule; the transverse median nervure is received a little in front of the apical third of cellule; the transverse radial nervure is largely bullated in the middle. The apex of coxæ is testaceous; the black on the femora reaches almost to the middle; behind the tibiæ are more or less fuscous; the anal appendages are black, pilose.

2. Selandria curialis.

Selandria curialis, Cresson, Trans. Amer. Ent. Soc. viii. p. 15[1].

Hab. Mexico[1].

3. Selandria flavipes.

Selandria flavipes, Norton, Proc. Bost. Soc. N. H. viii. 1861, p. 222. 12; Trans. Amer. Ent. Soc. i. p. 258; iv. p. 85; Catal. p. 121[1].
Selandria flavipes, Cresson, Trans. Amer. Ent. Soc. viii. p. 60[2].

Hab. North America.—Mexico [1].

4. Selandria glabra.

Selandria glabra, Kirby, List of Hymen. i. p. 190, t. 8. fig. 23[1].

Hab. Mexico, Orizaba[1].

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* *S. diversipes,* Kirby, and *S. inconspicua,* Kirby.

5. **Selandria leucopoda.**

Nigra, nitida; tegulis, pronoti limbo, macula laterali, mesopleuris pedibusque albido-stramineis, coxis basi tarsisque nigris; alis fere fuscis, costa et stigmate nigris. ♀.
Long. 6½ millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

The antennæ are not much shorter than the head and thorax, thickened in the middle, attenuated at the apex, two basal joints comparatively large, third about one fourth longer than the fourth; the last short, very conical and narrow. The transverse radial nervure is received close to the apical third of the third cubital cellule, and has a bulla; the first transverse cubital nervure is pellucid; the third cubital cellule is a very little longer and wider than the second; the second transverse cubital nervure has a faint bulla, from which issues a double spurious vein to near the apex of the wing; the transverse median nervure is received in apical third of cellule. The accessory nervure in hind wing is interstitial. Abdomen slightly carinated; the apices of the segments beneath are broadly white; the clypeus is truncated at the apex. The frontal area is not very clearly defined; there is a hollow below the ocelli, and at the end of this hollow is a wider, deeper, but shorter one. The three frontal foveæ are large, moderately deep, and united. The head scarcely projects behind the eyes; the claws are simple.

6. **Selandria crassa.** (Tab. II. figg. 5, ♀; 5 *a*, head; 5 *b*, antenna; 5 *c*, tarsus.)

Nigra, ore, pronoto, mesonoti lateribus, mesopleuris tegulisque albo-testaceis; pedibus flavo-albidis, tarsis nigris; alis fumatis, costa et stigmate nigris, cellula cubitali tertia fere breviore quam secunda.
Long. 6 millim.

Hab. GUATEMALA, San Isidro 1600 feet (*Champion*).

The antennæ are nearly as long as the abdomen, thickened in the middle, attenuated towards the apex, scape pale testaceous, third joint longer than the fourth. Sutures on vertex narrow but deep. Frontal area raised, the bounding ridges indistinct, a flat suture round the ocellus. Lateral antennal fovea round, deep; central wider than long, shallow. Clypeus truncated; the second cellule is of almost exactly the same length as third; the transverse radial nervure is received a good piece beyond the middle of the cellule, the transverse median near the apical third; there is a horny point in the second cubital cellule. The mesopleuræ are black behind, as also the breast; the middle lobe of mesonotum is black, except the apex; the cenchri are large. The face is covered with long white hair.

A male *Selandria* from El Tumbador is probably the male of this insect; but the mesonotum, pronotum, and mesopleura, where these parts in the female are pale testaceous, are in it crimson, and the scutellum is black. The crimson tint is perhaps owing to discoloration by the action of cyanide of potassium.

7. Selandria coccinata.

Selandria coccinata, Norton, Trans. Amer. Ent. Soc. iv. p. 85 [1]; Cresson, *l. c.* viii. p. 42.

Hab. Mexico [1].

8. Selandria mutica.

Nigra, ore pedibusque albis, tarsis posticis et tibiarum apice nigris, tegulis, pronoto mesonotoque rufis; alis subhyalinis, costa et stigmate nigris.
Long. 7 millim.

Hab. Guatemala, Capetillo (*Champion*).

In coloration this species resembles *S. crassa,* except that the antennæ are entirely black, and the pleuræ under the wings are not so broadly red, and it differs from it in the body being longer and narrower compared with the breadth. The antennæ are shorter compared with the length of the body, and do not taper so much towards the apex; they are thicker, and the last four joints are more abruptly shorter. The frontal foveæ are larger, the middle especially, and it is not placed so much below the others. The transverse radial nervure is received quite close to the third transverse cubital, and the transverse median nearer the middle of the cellule. The third joint of the posterior tarsi is double the length of the fourth, which is not the case with *S. crassa*; and the claws are simple, not cleft as in the latter.

I thought at first that this was *S. diversipes,* Kirby; but Mr. Kirby has compared the species I have referred to *Strongylogaster* with his type, and tells me that it is undoubtedly his species. *S. mutica* is very like *S. diversipes* in colour; but the shorter third cubital cellule, the almost interstitial transverse radial nervure, simple spurs, and smaller size sufficiently distinguish it.

9. Selandria nigripes.

Nigra, pilosa; pro- mesothoraceque rufis; alis fuscis; clypeo testaceo, truncato.
Long. $7\frac{1}{4}$ millim.

Hab. Panama, Bugaba, Chiriqui, David (*Champion*).

The antennæ are densely pilose, nearly as long as the abdomen, slightly thickened in the middle, attenuated towards the apex; third joint longer than fourth; sutures on vertex absent; frontal area flat in the middle, the suture interrupted there; but there is a deep suture surrounding the ocellus, and a less distinct shallower and broader one at the apex; at the apex of the ocellus is a large fovea. Lateral antennal foveæ large, flat; central wider than long, deep in the centre. The transverse radial nervure is received not far beyond the middle of cellule, the transverse median a little beyond the middle; there is a bulla in the transverse radial and first transverse cubital nervures; a horny point in second cubital cellule. The accessory nervure in hinder wing is interstitial; the blotch is very large.

10. Selandria ruficollis.

Selandria ruficollis, Norton, Trans. Amer. Ent. Soc. i. p. 259; Catal. p. 121 [1].

Hab. Mexico [1].

11. Selandria varitarsis.

Nigra, pronoto, mesonoto, mesopleuris tegulisque rufis; antennis pilosis; alis fumatis, cellula cubitali tertia breviore quam secunda.

Long. 5 millim.

Hab. Mexico (*Sallé*); Guatemala, Cubilguitz (*Champion*).

Antennæ nearly as long as the abdomen; third joint thinner at base than at apex, longer than fourth; three apical joints abruptly shorter than preceding, the ninth thinnest, sharply conical. Sutures on vertex broad, moderately deep. Frontal area interrupted in the middle, narrower and sharper-pointed at base than at apex, the suture behind the ocellus being also deeper; a large fovea in front of ocellus; lateral antennal foveæ large, roundish, shallow, and running into the central one, which is not so wide. Clypeus truncated. The first radial cellule is shorter than the second; third cubital, shorter than second, receives the transverse radial nervure a little beyond the middle; the transverse median nervure is received a little beyond the middle of cellule. The greater part of the four posterior metatarsi is dull white, anterior black. The legs are thickly covered with hair, which gives the tibiæ especially a dull appearance; the metatarsus is shorter than the succeeding joints. The blotch is very large.

Similar to *S. nigripes* in coloration, but is smaller, the antennæ are shorter, thicker, and less pilose, the third cubital cellule shorter compared with second; metatarsus shorter, and white for the greater part. It may possibly be a variety of *S. ruficollis*; but the description is not sufficiently detailed to enable me to settle this point. *S. ruficollis*, however, has the anterior femora and tibiæ yellow, and the apical half of middle femora and tibiæ obscure reddish. Norton's variety very possibly belongs to *S. varitarsis*.

MONOPHADNUS.

Monophadnus, Hartig[1], Blattwespen, p. 271.
Waldheimia, Brullé, Hym. iv. p. 665.

The majority of the Neotropical species of *Monophadnus* differ from the Palæarctic forms in the posterior coxæ being larger, reaching sometimes to the fourth abdominal segment; the metatarsus is longer than all the other tarsal joints together; and the antennæ are usually pilose, thickened beyond the middle, and with the last four joints abruptly shorter. These three characters are found more or less in the other genera of Selandriades inhabiting the Neotropical Region; they are comparative characters in all of them, and cannot be readily used in diagnosing genera. For instance, while in some species of *Monophadnus* the posterior coxæ reach or go beyond the

apex of the fourth abdominal segment, in other species they do not reach much beyond the middle of the third; and the same remark applies to the length of the metatarsus. I have therefore sunk *Waldheimia*, which was formed for a species which possessed the three peculiarities I have mentioned above.

The majority of the Neotropical species are much longer than the Nearctic or Palæarctic species. Some tinge of yellow is the prevalent colour; and the wings are seldom or never altogether hyaline.

Monophadnus is the largest of the genera allied to *Selandria*; fifteen species have been described from America north of Mexico, five or six from South America. There are forty European; three are known from Japan and China, and one from India.

1. **Monophadnus scutellatus.**

Monophadnus scutellatus, Kirby, List of Hymen. i. p. 177, t. 7. f. 18[1].

Hab. Mexico, Orizaba[1].

2. **Monophadnus trimaculatus.** (Tab. II. figg. 6, ♀; *a*, head, from front; *b*, from side; *c*, antenna; *d*, claws; *e*, tarsus).

Niger, nitidus, antennis (apice excepto), vertice, maculis 3 mesonoti, abdominis fasciis medio tibiisque posticis dimidio apicali nigris, antennarum apice tarsisque albis; alis flavo-hyalinis, costa et stigmate testaceis.
Long. 10 millim.

Hab. Guatemala, Zapote (*Champion*).

The antennæ are not much longer than the abdomen, thickened in the middle, pilose; third joint one fourth longer than the fourth, apex of first joint and four apical joints white. Sutures on vertex shallow; frontal area indistinct in front, distinct behind and in the middle; the base sharply pointed; a shallow fovea in front of ocellus; the apex of fovea raised in middle. Lateral antennal foveæ of moderate size, running into the large central one, which is double their size. Clypeus rounded at apex. The transverse median nervure is received a little in front of cellule; transverse radial in apical third of third cubital, which is double the length of second, and one half wider at apex than at base. There is a distinct appendicular cellule in hind wings; their accessory nervure is shortly appendiculated. Claws bifid. There is a small black spot on each side of sternum, and another on upperside of metapleura. The black mark on centre of vertex is wider at base than at apex, and projects at the ends.

3. **Monophadnus lætus.**

Rufo-testaceus, antennis, capite (ore excepto), abdominis apice, tibiis tarsisque nigris; alis flavescenti-hyalinis, apice fusco, nervis testaceis.
Long. 11 millim.

Hab. Panama (*Boucard*).

Broad compared with the length. The antennæ are pilose, thickened in the middle,

distinctly attenuated at the apex. The sutures on vertex are deep; the frontal area is deep, well-defined, open at the middle on lower sides, a furrow issuing through the open part from the ocellus; foveæ scarcely indicated; clypeus truncated at apex, but with the edges rounded. The clypeus, labrum, and mandibles are testaceous; there is also a small brownish mark on the outer side of the frontal suture. The transverse radial nervure is in apical third of cellule; transverse median a little in front of middle; the first recurrent nervure is received in middle of the second cubital cellule, which is considerably shorter than the third; the apex of stigma is blackish, as are also the nervures in front of it.

This species comes near *M. ochra*, but is much larger and broader, the apex of abdomen is black, and only the apex of the wings is fuscous, the transverse radial and recurrent nervures are received further from the transverse cubitals, the space above the antennæ is not so hollow, and the frontal area is better marked at the apex.

4. **Monophadnus fascipennis.** (*Strongylogaster fuscipennis*, Tab. I. fig. 17.)

Selandria fascipennis, Norton, Trans. Amer. Ent. Soc. iv. p. 84; Cresson, *l. c.* viii. p. 40, ♂ & ♀ [1].

Hab. Mexico [1].

5. **Monophadnus costalis.**

Rufo-testaceus, antennis pilosis, nigris; costa, abdominis apice tibiisque (basi excepta) nigris; tarsis nigris, basi alba; alis flavo-hyalinis, apice leniter fusco, stigmate testaceo.

Long. 10 millim.

Hab. Mexico, Valladolid in Yucatan (*Gaumer*).

Antennæ thick, pilose, shorter than the abdomen; third joint much longer than fourth, four last joints abruptly shorter. Clypeus rounded at apex; face covered with long testaceous hair. Sutures on vertex shallow; frontal area small, oval, sharp at base, the apex open, connected by a furrow with the central antennal fovea; lateral antennal fovea deep in the centre, but widening out round the edge. Third cubital cellule more than double the length of second, which, on its lower side, is not much longer than the first on its lower side; it is angled where it receives the recurrent nervure at the apical third; the transverse radial nervure is received a little beyond the middle; transverse median a little in front of middle of cellule. The two posterior tibiæ are black, except at base, which is pale testaceous; the anterior are only black behind in the middle, at apex all round. Not much more than the half of the four anterior tarsi are white, more than two thirds of posterior. The space surrounding the ocelli is black. The claws are bifid.

6. **Monophadnus annulipes.** (Tab. I. figg. 3, ♀; 3*a*, maxilla; *b*, labrum; *c*, mandible.)

Testaceus, antennis, vertice, macula supra coxas posticas, abdominis apice, femoribus posticis cum apice tibiarum

et tarsorum nigris ; genibus, tibiis tarsorumque basi albis ; alis flavo-hyalinis, apice fusco, costa et stigmate flavis.

Long. 9 millim.

Hab. GUATEMALA, Cahabon, El Reposo (*Champion*).

The antennæ are as long as the abdomen, densely pilose, moderately thickened in the middle, attenuated at the apex ; the pedicle of the scape is testaceous. The sutures on vertex are deep and curved round the ocelli ; the frontal area is bluntly pointed at the base, the sides curved, the apex open, the ocellus is surrounded with a furrow ; the three antennal foveæ are very large, the lateral rounded and wider than the central, and have a rounded projection in the middle ; the central is longer than wide ; the projection in the centre is widest at the apex. Clypeus rounded at the apex ; the cheeks densely pilose. The mark on vertex only surrounds the ocelli. The transverse radial nervure is received in the apical third of cellule ; transverse median before the middle ; the third cubital cellule is much longer and wider than the second, and double the width of base at the apex. There is a distinct bulla in the transverse radial, and third and fourth transverse cubital and second recurrent nervures ; a double spurious vein issues from the bulla on third transverse cubital ; a single one issues from near the base of the first recurrent nervure to the bulla on second recurrent, where it bifurcates into two. All the tarsi are black from the second joint. The front femora are testaceous, except a black line at the base ; the middle are black to a little beyond the middle ; posterior black, except the extreme base and apex. The apical two thirds of the four posterior tibiæ are black ; claws bifid ; spurs testaceous.

The antennæ are longer and thinner than in *M. costalis* ; the frontal area slightly shorter ; and the lateral furrows from it do not run down into the central antennal fovea, although, as in *M. costalis*, there is a central depression running into it ; the antennal foveæ are larger ; the wings are more clouded at the apex, the bullæ more distinct, they being scarcely visible in *M. costalis*, which has besides no spurious veins ; the femora are marked with black ; and it is also a narrower insect.

7. **Monophadnus interstitialis.**

Rufo-testaceus, antennis nigris, basi testacea ; pedibus testaceis, tibiis intermediis apice, posticis dimidio apicali nigris ; alis flavo-hyalinis, apice fusco, nervis testaceis, nervo 2° recurrente interstitiali, costa et stigmate testaceis ; foveolis frontalibus parvis.

Long. 9 millim.

Hab. PANAMA, Volcan de Chiriqui, 2000 to 3000 feet (*Champion*).

The antennæ are a little longer than the abdomen, but slightly thickened in the middle, densely pilose, the third joint a little longer than the fourth, the apex not attenuated, the scape testaceous. Sutures on vertex very shallow and indistinct ; frontal area proper absent ; but there is a shallow pit in front of ocellus ; antennal foveæ small, shallow. Clypeus truncated at the apex ; ocelli surrounded with black.

The transverse radial nervure is received in the apical third of the cellule, the transverse median a little in front of middle of the cellule; the second recurrent interstitial; the third cubital cellule is a little shorter than the second, much wider at the base than at the apex; bullæ not very distinct. The claws are bifid; the posterior spurs black; the posterior tibiæ black, except at the base; the middle pair only black at the apical half. The two apical joints of all the tarsi are black; the rest of the tarsi pallid testaceous; the legs are more pallid in colour than the body. The sheath is black and long.

Very closely allied to *M. testaceipes*, but smaller and broader compared with the length; the antennæ are thinner and not so densely clothed or with such a long pile; frontal area less defined, antennal foveæ smaller and not united by a suture, the under fovea especially being much smaller; the clypeus is not so rounded, the nervures are not so dark, being testaceous not blackish, the spurious veins less distinct; and the tarsi are not so white.

8. **Monophadnus testaceus.**

Testaceus, antennis sat dense pilosis, nigris, basi testacea, foveola interantennali magna, tibiarum intermediarum apice, posticis ultra medium nigris; tarsis albidis, apice nigro; alis hyalinis, apice lenissime fusco, nervis fuscis; stigmate et costa testaceis.

Long. 11 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ pilose, the scape and the base of the third joint testaceous, thickened in the middle, third longer than fourth; last four joints abruptly shorter, very slightly attenuated. Head narrow, retreating behind the eyes, where it is very slightly developed; sutures on the vertex shallow; frontal area visible only as a depression in front of the ocellus; antennal fovea distinct, central large, a little longer than broad, running into the lateral ones at its apex. Clypeus rounded. Face short; eyes not reaching to the mandibles. The transverse median nervure is received a very little in front of the middle of the cellule, the transverse radial in the apical fourth; third cubital cellule wider and much shorter than the second; the second recurrent nervure is received a very little in front of the second transverse cubital and in the second cubital cellule; the accessory nervure in the hind wing shortly appendiculated. Claws simple; the extreme apex of the posterior tarsi is black.

Easily known from the other yellow species by the third cubital cellule being shorter than the second, and by the second recurrent nervure being received in the second cubital cellule; but the latter may be an exceptional character.

9. **Monophadnus tibialis.**

Testaceus, antennis, tibiis tarsisque nigris, alis flavo-hyalinis, apice fusco, cellula cubitali 3ª longiore quam 2ª.

Long. 14 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ scarcely pilose, shorter than the abdomen, thickened in the middle, last four joints abruptly shorter and more globular than the preceding, third joint more than one third longer than the fourth. Face long, lateral sutures on the vertex deep, central faintly indicated. Frontal area small, oval, but a little wider at the apex; three antennal foveæ large, but not very deep compared with their size, the lateral running into the central at the lower end. Clypeus rounded at the apex. Eyes oblong, not reaching to the mandibles. The transverse median nervure is received close to the middle of the cellule, transverse radial in the apical third, second recurrent nervure almost interstitial; third cubital cellule scarcely one half longer than the second; there is a bulla in the transverse radial nervure, a fainter one in the second and third transverse cubital, and one more distinct and longer in the second recurrent. The accessory nervure in the hind wings shortly appendiculated; the anterior tibiæ are testaceous in front; the tarsi for the greater part of the same colour. The abdomen is a half longer than the thorax and head; the saw issues from the fifth abdominal segment; the sheath black and pilose. The wings are clouded from a little behind the apex of the stigma; the nervures are testaceous.

10. **Monophadnus ochra.** (Tab. II. fig. 7, ♂.)

Selandria ochra, Norton, Trans. Amer. Ent. Soc. i. p. 249[1]; Catal. p. 111, ♂.

Hab. Mexico, Cordova (*de Saussure*[1]), Valladolid in Yucatan (*Gaumer*); Nicaragua, Chontales (*Janson*).

I presume the specimens from Nicaragua and Yucatan are identical with Norton's species; but the characteristic alar neuration is not described. The transverse radial and second recurrent (very nearly) nervures are interstitial; the transverse median is received considerably in front of the middle of cellule, which is a little longer than the second. The vertical sutures are wide, the space between the ocelli and the eyes being slightly hollowed; the frontal area is well defined, but open completely at the lower end, the ridge curving towards the eyes; the foveæ are flat.

11. **Monophadnus violaceipennis.** (Tab. II. fig. 8, ♂: *a*, head; *b*, posterior wing.)

Nigro-cæruleus, ore, tarsis tibiisque pro parte albidis, alis nigro-violaceis.
Long. 9 millim.

Hab. Guatemala, Panima (*Champion*).

The antennæ are pilose, as long as the abdomen, thickened from the fourth joint, the third joint much longer than the fourth, the third and fourth joints thinner than the succeeding, the apex scarcely attenuated. The sutures on the vertex are flat, broad, the frontal area ill defined; a broad furrow runs from the lower ocellus to the central antennal fovea, which is larger, but still smaller than the more rounded lateral ones, with which it is united by a broad furrow. The eyes are large, converging, reaching to the base of the mandibles; clypeus small, rounded at the apex; labrum nearly as long

as the clypeus, which projects a little over it; the labrum and clypeus are white; mandibles blackish, as are also the palpi. The transverse radial nervure is received in the apical fourth of the cellule, the first recurrent beyond the middle of the second cubital cellule, which is only a little longer than the first, and not half the length of the third; second recurrent received a little beyond the second transverse cubital; the transverse median is received a little in front of the middle of the cellule. In the hind wings the transverse nervures are at the edge of the wing. There is a bulla in the transverse radial and first transverse cubital. The apex of the coxæ, the trochanters, the apex of the femora, the tarsi except at the apex, four anterior tibiæ, and the base of the posterior tibiæ are black. The metatarsus is longer than all the other joints; the claws almost bifid. The cubital nervure forms almost a half-circle; the hinder wings are lighter-coloured than the anterior.

Comes near to *M. longipennis*, Norton, but probably distinct.

12. **Monophadnus longipennis.**

Selandria longipennis, Norton, Trans. Amer. Ent. Soc. iv. p. 84 [1]; Cresson, loc. cit. viii. p. 41, ♀.

Hab. Mexico, Cordova (*Sumichrast* [1]).

13. **Monophadnus fumosus.**

Nigro-violaceus, pilosus, thorace tegulis unguiculisque rufis, alis nigro-violaceis.
Long. 9–10 millim.

Hab. Panama, Bugaba (*Champion*).

The clypeus is truncated at the apex, rounded at the sides; the lateral frontal foveæ are shallow, much smaller than the central, which is joined by a wide suture to the frontal area, which is deep, rounded behind the ocellus and hollowed in front of it. Frontal sutures wide, moderately deep; the vertex is indistinctly carinated in the centre; below the lateral ocelli is a small fovea. Spurs very short, curved; claws apparently simple. Wings longish; the first cubital cellule is small, broader than long, the second about one third shorter than the third; the transverse radial nervure is received in front of the apical third of the cellule, first recurrent in the basal third; second not far from the second transverse cubital: there are spurious veins running through all the bullæ. The male does not differ from the female beyond the second cubital cellule being a little longer compared with the third.

This species cannot, I think, be *M. cordigera*; for that is stated to have the antennæ "about as long as the head and mesothorax together," while in the present species they are distinctly longer than the head and entire thorax together; the abdomen in *M. cordigera* is "almost as broad as long;" here it is much longer than broad; in *M. cordigera* the wings are clearer at the apex; here they are uniform in tint, and the claws are simple. Compared with *M. suturalis* the antennæ are longer and thinner, more pilose, and the third joint is not nearly so long compared with the fourth; the sides of the clypeus are more rounded, the central frontal foveæ larger and deeper, and the lateral

smaller; the second cubital cellule is much longer, and the abdomen shorter and broader compared with its length. *M. imitatrix* is readily known from it by the shallow frontal area, small frontal foveæ, shorter and thicker antennæ, much shorter second cubital cellule, and bifid claws.

14. **Monophadnus cordigera.**

Tenthredo cordigera, Beauv. Ins. Afr. Amér. p. 97, Hym. t. 9. f. 4 (1805).
Monophadnus cordigera, Kirby, List of Hymen. i. p. 175 [1].
Allantus barda, Say, Bost. Journ. i. p. 218 [2].
Selandria barda, Norton, Proc. Bost. Soc. viii. p. 220; id. Trans. Amer. Ent. Soc. i. p. 247.
Selandria dubia, Cresson, Proc. Ent. Soc. Phil. iv. p. 264; Nort. Trans. Amer. Ent. Soc. i. p. 248.

Hab. North America.—Mexico [1].—Venezuela [1]; Brazil [1].

I quote the above from Kirby [1]. *T. cordigera* is possibly my *M. suturalis.* But the latter is not *Allantus barda*; for that is stated to have claws with a "very minute obtuse inner tooth, distant from the tip," while in *M. suturalis* it is equally cleft; Cresson, too, says that the abdomen in *Selandria dubia* is "short, almost as broad as long," which does not apply to *M. suturalis.* Norton states that the claws in *A. dubia* are as in *S. barda.*

15. **Monophadnus suturalis.**

Niger, pronoto, mesonoto tegulisque rufis; tibiarum anteriorum margine antico sordide testaceo; alis violaceis. Long. fere 11 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Antennæ shorter than the abdomen, thickened in the middle, eighth and ninth thinner than the sixth and seventh, which are rounded on the lower side, third joint about one third longer than the fourth; pilose. Sutures on vertex broad, the part behind the ocelli and bounded by the sutures raised and separated from the ocelli by an indistinct furrow; in front in the centre of the raised portion is a fine suture. Frontal area clearly defined, open behind by a narrow furrow, and in front it is continued by a furrow into the central fovea, this furrow being much wider than the one behind; central fovea larger than the others; lateral round. Clypeus rounded. The transverse radial nervure is received a little past the middle of the cellule, the transverse median nearly in the middle; the second cubital cellule is not much longer than the first, and not half the length of the third; it has a large horny point in the centre. The claws are thick, with the apex cleft. The tarsi are a little longer than the tibiæ; the metatarsus scarcely so long as the succeeding joints. The anterior knees, tibiæ, and tarsi are dirty testaceous in front.

The male has the third cubital cellule much shorter; there is no furrow leading from the frontal area into the central fovea, so that the area is a mere pit enclosing the ocellus; the base is narrow, the apex wider and rounded. The base is closed; and there is no suture on the pad-like elevation behind the ocelli.

The largest of the black and red species. Easily known by the large size of the frontal foveæ.

16. **Monophadnus mexicanus.**

Selandria mexicana, Norton, Trans. Amer. Ent. Soc. i. p. 248, iv. p. 84; Catal. p. 110, ♀ & ♂[1].

Hab. Mexico [1].

17. **Monophadnus obsoletus.**

Nigro-violaceus, prothorace, mesonoto cum scutello pleuris tegulisque rufis; alis violaceis, nervo radiali interstitiali, cellula cubitali 2ª longiore quam 3ª. ♂.

Long. 8 millim.

Hab. Panama, Bugaba (*Champion*).

The antennæ are thickened towards the middle, densely pilose, third joint nearly one half longer than the fourth. Clypeus truncated in the middle, broadly rounded at the sides; it, as well as the labrum, is covered with long hair. Frontal foveæ almost obsolete; in the centre of the lateral is a small round tubercle, frontal area with a furrow open at the apex, surrounding the lower ocellus; sutures on vertex deep, wide. Eyes large. First radial cellule longer than the second; first cubital cellule longer than broad, third much dilated at the apex.

Closely allied to *M. imitatrix* and *M. clypeatus*, but differs from both in the frontal foveæ being almost completely obliterated, and especially the central, while in the species just mentioned they are clearly defined, by the interstitial radial nervures, and by the second cubital cellule being longer than the third. The claws are apparently simple, and the metatarsus is a little shorter than all the other joints together; the anterior tibiæ are dirty white in front.

18. **Monophadnus imitatrix.**

Niger, pronoto mesonotoque cum scutello rufis, ore, genibus tibiisque anticis sordide albis; alis violaceis, apice subhyalinis.

Long. 8 millim.

Hab. Guatemala, San Gerónimo, Quiche Mountains, Dueñas, Capetillo (*Champion*).

The antennæ are a little shorter than the abdomen, moderately stout, covered with a microscopic pile, the third joint nearly one half longer than the fourth. The four apical joints abruptly shorter than the rest, and not much longer than broad. Sutures on the vertex distinct; lower ocellus surrounded by a triangular pit, the apex not being so clearly defined as the base; frontal foveæ moderate, not united, the middle one smallest. Clypeus with its edges rounded. The first radial cellule is a little shorter than the second; transverse radial nervure straight, not curved, received in the apical third of the cellule, transverse median in the middle; second cubital cellule scarcely half the length of the third. Abdomen a little longer than the head and thorax, its apex with the sheath pilose. The tarsi are about the length of the tibiæ. Metatarsus about as long as the four succeeding joints.

M. mexicana seems to be very closely allied to this; but it has the coxæ at the apex, the trochanters and the base of the femora, the anterior femora and tibiæ in front, and two thirds of the hinder femora below white, and the tegulæ red; the wings, too, are equally subviolaceous.

19. **Monophadnus clypeatus.**

Niger, pronoto, mesonoto tegulisque sanguineis, clypeo, genibus tibiisque anterioribus margine antico sordide albidis; alis violaceis.
Long. $6\frac{1}{2}$ millim.

Hab. GUATEMALA, Cerro Zunil, 4000 feet (*Champion*).

Very similar to *M. imitatrix*, but smaller, the antennæ longer, more pilose, the third joint longer, being almost double the length of the fourth; the frontal foveæ are smaller, nearly equal in size, and distinctly separated; the pit enclosing the ocellus is roundish, not triangular; labrum black; the tegulæ are red, the third cubital cellule is shorter. The claws are bifid. The wings are deep violaceous, very slightly lighter in tint at the apex.

20. **Monophadnus erebus.**

Monophadnus erebus, Kirby, List of Hymen. i. p. 178, t. 8. f. 10[1].

Hab. MEXICO.—AMAZONS, Para[1].

21. **Monophadnus melanosternus.**

Luteus, antennis, pleuris, sterno abdominisque apice nigris; pedibus nigris, apice coxarum, trochanteribus, basi tibiarum et tarsorum albis; alis flavescenti-hyalinis, apice fumato; nervis flavis.
Long. fere 10 millim.

Hab. PANAMA, Bugaba (*Champion*).

The antennæ are densely pilose; the four apical joints are abruptly shorter, and together are not much longer than the third joint. Clypeus truncated at the apex, rounded at the sides; three frontal foveæ large, deep, lateral round, middle longer and deeper; there is a fovea below the lower ocellus, and it is surrounded by a triangular groove; frontal sutures deep; the second cubital cellule is not much longer than the length of the first on its lowerside, and not much more than half the length of the third on its upperside; the transverse radial nervure is received in the apical third of the cellule; first recurrent in the middle, second not far from the second transverse cubital. The legs are densely pilose; the basal tarsal joint is white in all the legs; claws bifid, spurs a little more than one third of the length of the metatarsus; nearly half of the anterior tibiæ is white, of the posterior more than one third; the anterior femora are white at the apex; the cloud in the fore wings commences at the end of the stigma, extends backwards to the second transverse cubital nervure, and then slopes along the second recurrent.

This distinct species was received too late to be inserted in its proper place before *M. annulipes*.

BLENNOCAMPA.

Blennocampa, Htg. Blattw. p. 266 (1837).

This genus is limited to those species which have no middle cellules in the posterior wings. It contains fewer species than *Monophadnus*, and is also somewhat more limited in distribution. Twenty-five European species are known; two have been described from Asia Minor, seven from North America, and five from South America (namely one from Brazil allied to *B. subcærulea*, two from Para, and two from Chili).

1. **Blennocampa albofemoralis.** (Tab. II. figg. 12, ♀; 12 *a*, head.)

Nigra, pilosa, mesonoto (scutello excepto) tegulisque rufis; metapleuris, coxis, femoribus, tibiarum basi, tarsis, ore pronotoque albis; alis violaceis; antennis pilosis.
Long. 8–9 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

The antennæ are as long as the abdomen, the third joint thinner at the base, longer than the fourth, the last four joints abruptly shorter. Sutures on the vertex deep; central ocellus surrounded by a wide and deep furrow. Two lateral foveæ large; a tubercle in the centre, not united with the central fovea, which is small. The transverse radial nervure is received at the edge of the apical third of the cellule; transverse median a little in front of the middle, the first recurrent nervure is received close to the middle of the cellule; third cubital cellule much longer than the second; there is a horny point at its base; and there is another in the second. In the hind wing is a long appendicular cellule. Claws subbifid; the clypeus is rounded at the edges, truncated in front; labrum rounded. The clypeus, labrum, and a little space between the antennæ white; mandibles black. Palpi white, black at the apex. The metatarsus is as long as the four succeeding joints; tarsi as long as the tibiæ; the apical joints of tarsi black. The abdomen is longer than the head and thorax; the blotch is very large, white; apex of the abdomen and sheath covered with long hairs.

2. **Blennocampa sumichrasti.**

Selandria sumichrasti, Norton, Trans. Amer. Ent. Soc. iv. p. 82; Cresson, loc. cit. viii. p. 40, ♀ [1].

Hab. Mexico, Cordova (*Sumichrast* [1]).

3. **Blennocampa intermedia.** (Tab. II. figg. 11, ♀: *a*, head; *b*, tarsus; *c*, antenna.)

Nigra, pronoto, tegulis mesonotoque rufis; antennis pilosis; alis violaceis, nervo 2° recurrente interstitiali.
Long. 8 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

The antennæ are a little shorter than the abdomen, slightly thickened in the middle, attenuated at the apex, the third joint one half longer than the fourth. Head sharply narrowed behind the eyes; sutures on the vertex deep; frontal area forming a rounded furrow behind and in front of the ocellus, but open at the apex. Lateral foveæ large,

round, with a tubercle in the centre; central much longer than broad, deep, projecting behind, bifurcating round a tubercle in front; face covered with long white hair; clypeus scarcely transverse. The transverse radial and second recurrent nervures are interstitial; the third cubital cellule is a little longer than the second, which has an obscure horny point; the transverse median is received in the basal fourth of the cellule. There are spurious veins of the usual form in the radial, cubital, and discoidal cellules; the appendicular cellule in the posterior wings is large. The tarsi are shorter than the tibiæ, the claws bifid.

A specimen from Bugaba has the transverse radial and second recurrent nervure not interstitial, they being received at a little distance from the transverse cubital nervures; but it does not differ otherwise.

4. **Blennocampa leucosoma.**

Nigra, ore, genibus, tarsis tibiisque anticis sordide albis; pronoto, mesonoto tegulisque rufis; alis fusco-hyalinis.
Long. 8 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

The antennæ are somewhat longer than he head and thorax, covered with a microscopic pile; third joint much longer than the fourth, four apical joints abruptly shorter than the others, scarcely attenuated. Sutures on the vertex deep; lower ocellus surrounded by a deep furrow, frontal area proper not indicated; frontal fovea very large and united by a broad furrow; the central wider than long, projecting in the middle above. Clypeus truncated at the apex; palpi blackish fuscous. Mandibles black; labrum and clypeus white; the second radial cellule is longer than the first; the transverse radial nervure is received in front of the middle of the cellule, the second recurrent almost interstitial; third cubital cellule one fourth longer than the second, which is double the length of the first on the upperside; the transverse median is received in front of the middle of the cellule. In the hind wings the appendicular cellule is short. Claws bifid.

Apart from the differences in the neuration and coloration, *B. leucosoma* differs from *B. intermedia* in the wings being lighter-coloured, the antennæ shorter and with a shorter pile, the four apical joints more abruptly shorter, the metatarsus as long as the four succeeding joints, while in *B. intermedia* they are distinctly shorter than it.

Obs. Norton (*l. c.* p. 246) describes a species from Mexico as a variety of *B. inhabilis* (a species described from Massachusetts), which agrees pretty closely in coloration with *B. leucosoma*, and is possibly identical with it.

5. **Blennocampa subcærulea.** (Tab. II. fig. 10 ♀.)

Subcærulea, nitida, antennis pilosis; alis nigro-violaceis, cellula cubitali 3ª longiore quam 2ª.
Long. $7\frac{1}{2}$ millim.

Hab. GUATEMALA, San Gerónimo (*Champion*); PANAMA, Volcan de Chiriqui 2500 to 4000 feet, Bugaba (*Champion*).

The antennæ are shorter than the head and thorax, moderately stout; third joint distinctly thickened at the apex, and half as long as the fourth. Clypeus almost transverse; the sutures on the vertex are deep at the sides of the ocelli, broader and shallower below them; the front is roughly blistered, so that the ridges of the frontal area are almost obscured; the broad sutures of the vertex end in a ridge, which curves round the antennæ and goes round its inner side; the frontal foveæ are not well marked; the lateral is represented above the above-mentioned ridge by a small tubercle; the central is not visible at all, but between the antennæ is a large rounded tubercle surrounded by a furrow. The transverse radial nervure is received in the apical sixth of the cellule, the transverse median in front of the middle; the third cubital cellule is longer than the second by one third, is narrow at the base, much widened at the apex. There is a bulla on the transverse radial and first transverse cubital; and a double spurious vein goes through the cubital and discoidal cellules; and there is a single one in the first radial. The legs are stout, the tibiæ grooved on the inner side, the tarsi shorter than the tibiæ, the metatarsus shorter than the succeeding joints; the claws subbifid. The abdomen is longer than the head and thorax, its apex pilose, as are also the cerci and apex of the sheath. The head is only very slightly developed behind the eyes.

The male has the front smoother, not so blistered, the third cubital cellule shorter.

6. **Blennocampa alpina.**

Nigra, antennis crassis, fere glabris, genibus tibiisque anticis sordide testaceis; alis fuscis, cellula cubitali 3ª fere breviore quam 2ª.
Long. fere 7 millim.

Hab. MEXICO, Ciudad in Durango 8100 feet (*Forrer*).

The antennæ are a little longer than the head and thorax, the third joint a little longer than the fourth, the rest to the penultimate becoming gradually shorter, but scarcely thinner; the ninth longer than the eighth. The head projects behind the eyes, close to which there is a narrow suture. The sutures on the vertex are deep, if narrow; frontal area moderately well defined, the apical edges angled, the middle straight. Central fovea large, longer than broad; lateral ones indistinct. Clypeus with shallow punctures, the apex scarcely transverse; tips of mandibles piceous. The transverse radial nervure is received a very little beyond the middle of cellule; transverse median a little in front of the middle; the third cellule is a little shorter and wider than the second, which bears a distinct horny point; there is a bulla in the first transverse cubital nervure; the abdomen is not much longer than the head and thorax, the sheath projecting, large, slightly pilose. Claws simple; tarsi shorter than the tibiæ. The legs are covered with a greyish pile.

Readily known from all the other Neotropical species by the head being broadly developed and projecting behind the eyes, and by the punctured clypeus. The shape of the head is characteristic of northern forms.

PŒCILOSOMA.

Pœcilostoma, Dahlbom, Consp. Tenthr. p. 5 (1835).
Empyria, Brullé, Hymén. iv. p. 666.

This genus is of small extent, and is not of very wide distribution. Nine European species have been described, two North-American, and one is known from Chili. The typical species have black bodies and legs; and the white markings on the edges of the abdominal segments are characteristic. The black species are difficult to separate, unless attention be paid to structural details.

1. **Pœcilosoma mexicanum.** (Tab. II. figg. 9; 9 *a*, labium; *b*, antenna; *c*, maxilla; *d*, saw; *e*, mandible.)

Nigrum, nitidum, pilosum, tegulis, pronoti limbo, genibus tibiisque anterioribus margine albidis; calcaribus posticis brevibus, unguiculis dente subapicali armatis; alis fumatis, costa et stigmate nigris. ♀.
Long. 6–7 millim.

Hab. Mexico, Milpas in Durango 5900 feet (*Forrer*).

The antennæ are somewhat longer than the head and thorax, but shorter than the abdomen; they are thick, almost glabrous, the third joint nearly one fourth longer than the fourth, the last shorter and thinner than the eighth. The front and vertex are slightly shagreened; the sutures on the vertex are deep but narrow; the ocelli are separated from the part behind them by a deep furrow. The frontal area proper is obsolete; the lower ocellus has a short triangular furrow surrounding it behind; the front projects between the antennæ, ending in a sharp point in the middle, and hollow on either side of this; the antennal fovea is large, deep, and round. Below each antenna is a large, deep, somewhat roundish depression. The clypeus is incised, with the edges acute; with a strong glass it is seen to be pitted with round shallow depressions; the mandibles and sometimes the labrum are piceous; the mandibles have a subapical tooth. The eyes are comparatively small; the second radial cellule is a little shorter than the first; the transverse radial nervure is received a little in front of the third transverse cubital. The first transverse cubital nervure is distinct; the first cubital cellule is comparatively large; the second is longer than the third, but much narrower than it; in the second cubital cellule is a horny point; the recurrent nervures are received a little in front of the cellules, the transverse median nearly in the middle; the accessory nervure in the posterior wings is appendiculate. The cenchri are fuscous.

Judging from the description, this species would appear to come close to *P. inferentium*, Norton, of which only the male has been described; but the present species appears to have longer antennæ, those organs in *P. inferentium* being "short, not longer than to scutellum."

EMPHYTUS.

Tenthredo, Fam. ix. (*Emphytus,* p.), Klug, Berl. Mag. viii. p. 278 (1819).
Emphytus, Sect. i., Hartig, Blattw. p. 247 (1837).

Forty-six Palæarctic species of this genus are known, mostly from Europe; but species are also known from Asia Minor, Algeria, Persia, and Japan. Seven species have been recorded from North America, where the genus is less numerously represented than *Harpiphorus*, which differs from it only in having a median cellule in the posterior wings. This is the first record of the genus in the Neotropical Region.

1. **Emphytus championi.** (Tab. II. fig. 13, ♀.)

Niger, longus, nitidus, tegulis pronotoque albis; abdomine pedibusque luteis; tarsis posticis tibiarumque apice fuscis; alis subfumatis, costa et stigmate nigris.
Long. 8 millim.

Hab. GUATEMALA, Purula (*Champion*).

Head faintly punctured, frontal area indistinct, clypeus truncated at the apex. Antennæ a little longer than the abdomen, finely pilose, third joint longer than the fourth. The transverse radial nervure is interstitial; the transverse median is received a little beyond the middle of the cellule. Claws simple. Sheath of the saw black.

Very similar to the European *E. serotinus*, Kl.; but that is broader and stouter, the pronotum is quite black, the third and fourth joints of antennæ subequal, &c.

2. **Emphytus mexicanus.**

Niger, genibus, tegulis tibiisque anticis sordide albidis; alis fuscis.
Long. 8 millim.

Hab. MEXICO (*de Saussure*).

The transverse radial nervure is received in the apical third of the second cubital cellule, the transverse median in the middle; the head is slightly rugose, clypeus shortly incised. The antennæ are shortly pilose, the third joint longer than the fourth; the blotch is broad and white. There seems to be a pale line on the pro notum; but it is not very distinct.

This species is quite identical in coloration with the European *Emphytus tener*, Fall.

Subfam. *HYLOTOMINA.*

HYLOTOMA.

Hylotoma, Latreille, Hist. Nat. iii. p. 302 (1802).
Arge, Schrank, Fauna Boica, ii. pt. 2, p. 226 (1802).

This is a very extensive and widely distributed genus. Forty-four Palæarctic species are known, eleven from the East Indies, fifteen from the Ethiopian Region, twenty from America north of Mexico, and twenty from South America.

1. **Hylotoma basimacula.**

Cærulea, nitida, pilosa, antennis nigris, abdominis basi tibiisque (apice excepto) albis, alis violaceis. Long. 13 millim.

Hab. PANAMA, Bugaba (*Champion*).

The antennæ are thick, semiclavate, longer than the thorax, shortly pilose and grooved. The lower ocellus is placed in the frontal groove, which is wide and shallow and ends in the middle of the face, where its apex is not margined; the face below it is covered with scattered white hair. The clypeus is incised at the apex. The blotch is broad, and forms a conspicuous white mark. The wings are rather long; in the middle of both wings at the base is a small hyaline space; the second cubital cellule is a little shorter than the upperside of the third, and longer than its lower; the third is produced on the upperside; the third transverse cubital nervure almost touches the apical cellule; the second recurrent nervure is almost interstitial; the transverse median is received close to the basal third of the cellule.

This species is allied to *H. eximia*; but it is easily separated from it by the totally violaceous wings and black tarsi and apex of the tibiæ. The two are quite different in coloration from the other Central-American species.

2. **Hylotoma eximia.**

Hylotoma eximia, Kirby, List of Hymen. i. p. 65, t. 5. f. 11[1].

Hab. MEXICO, Orizaba[1].

3. **Hylotoma dorsalis.**

Hylotoma dorsalis, Klug, Jahrb. i. 1834, p. 236. 44[1]; Norton, Proc. Amer. Ent. Soc. i. p. 67, iv. p. 78; Kirby, List of Hymen. i. p. 69[2].

Hab. MEXICO[1], Oaxaca[2]; GUATEMALA, Dueñas, Capetillo (*Champion*).

Klug's description is very laconic, and I am not quite clear as to the specimens from Guatemala being identical with *H. dorsalis*. The antennæ are densely pilose and slightly furrowed. The frontal area is flat behind, and without a clear border there; beyond the ocellus the border is distinct, and the area is there moderately deep, especially at the apex; the antennal fovea is long, and tapers gradually to a point; the base is deeper than the apical half. The wings are blackish; the second recurrent nervure is almost interstitial; the transverse median nervure is received beyond the middle of the cellule. The head, thorax, and abdomen are bluish black (Klug describes these parts as "black" in his *H. dorsalis*); the pronotum, tegulæ, mesonotum with scutellum red; the metathorax is black.

Norton seems to think that *H. dorsalis* is identical with *H. scapularis*, Klug, a common North-American species; but the specimens I have described are certainly different —differing from *H. scapularis* in their longer antennæ, in there being no "large spot

on the pleura;" the costa and stigma are black, not ye llowish, while, again, the second recurrent nervure in *H. scapularis* is not interstitial.

4. **Hylotoma procera.**

Hylotoma procera, Klug, Jahrb. i. p. 235. 38; Norton, Catal. p. 38. 10[1].

Hab. Mexico [1].

5. **Hylotoma vittata.**

Hylotoma vittata, Kirby, List of Hymen. i. p. 70, t. 6. f. 2[1].

Hab. Mexico [1].

6. **Hylotoma bivittata.** (Tab. II. fig. 14, ♀; 14 *a*, antenna; 14 *b*, head.)

Lutea, antennis (basi excepta), maculis mesonoti et mesosterni, abdominis apice, genibus 4 posterioribus, tarsis tibiarumque apice nigris, ore, facie tibiisque albidis; alis violaceo-fumatis, costa et stigmate fuscis.
Long. 10 millim.

Hab. Panama, Volcan de Chiriqui, 2000 to 3000 feet (*Champion*).

The antennæ are as long as the abdomen and are shortly pilose; the antennal fovea is wide and does not taper much towards the apex. The face below the frontal area is white, the tips of the mandibles piceous, the greater part of the lobes of the mesonotum (except the apex of the middle and the sides of the lateral) and the tegulæ are black; the second recurrent nervure is received beyond the second transverse cubital, but at no great distance from it; the third cubital cellule is wider at the apex above than on the lower side; the posterior wings are lighter-coloured than the anterior. The black on the mesosternum forms either one mark or it may be divided into three. The calcaria are black.

The mesonotum with only the middle lobe is black, the tegulæ testaceous, the abdomen with only the two apical segments and the sides of the third black above (the type has the four apical segments completely black).

The tegulæ in the typical form are sometimes fuscous, and more rarely testaceous. The wings, too, differ in the intensity of the tint.

What I take to be the male has the four posterior tibiæ and tarsi black, the extreme apex only of the abdomen and the apex of the middle lobe of the mesonotum are black.

7. **Hylotoma testacea.**

Testacea, antennis (basi excepta), capite, abdominis apice, tarsis tibiarumque apice nigris; ore facieque inferne pallide testaceis; mesosterno fusco; tibiis albidis; alis hyalinis, apice obsoleto violaceo-fuscis, cellula cubitali tertia altitudine breviore; costa et stigmate testaceis.
Long. 9 millim.

Hab. Costa Rica (*Van Patten*).

The antennæ are as long as the abdomen, shortly and closely pilose. The frontal

area is rounded (but not broadly) behind, and projects very slightly at the frontal ridge; the antennal fovea projects a little at the apex of the tubercle, which is small and sharply pointed; and the fovea retreats somewhat abruptly from it towards the apex; the second recurrent nervure is received close to the basal fourth of the third cubital cellule, which is much broader than long; the spurs are white.

8. **Hylotoma pœcila.**

Hylotoma pœcila, Klug, Jahrb. p. 239. 54; Norton, Trans. Amer. Ent. Soc. i. 68[1]; Catal. p. 38 ♀ & ♂[1]; Kirby, List of Hymen. i. p. 70[2].

Hab. MEXICO, Orizaba[2], Cordova[1], Tampico, Huastec, Tierra fria (*H. de Saussure*); GUATEMALA, Panzos (*Champion*).

9. **Hylotoma intermedia.**

Rufo-testacea, antennis, capite, abdominis apice, tarsis tibiisque posterioribus nigris; alis fuscis, medio flavo-hyalinis; costa et stigmate nigris, basi testacea.
Long. 10 millim.

Hab. GUATEMALA, Panzos (*Champion*).

The antennæ are thickened towards the apex; they are nearly as long as the abdomen, very slightly pilose and grooved; the two basal joints are dull testaceous. The frontal area is rounded behind, and is not very deep; the antennal fovea is broad, tapers gradually, but not sharply, towards the apex, and is contracted very slightly towards the middle; in the deeper basal half is a blunt raised point. The wings are deep bluish black at the base, the apex is lighter-coloured; the hyaline central part consists of the first cubital cellule, the base of radial and of the second cubital cellule with the median cellule and the portion below it. The second recurrent nervure is received a little distance beyond the second transverse cubital nervure. The calcaria and spines are long and pale testaceous in colour; the claws are simple. The labrum is dull testaceous, the mandibles piceous; the palpi are testaceous.

Differs from *H. pœcila*, Kl., in the mesonotum being without black, in the hyaline part of the wings being more extended, in the second recurrent nervure being received at a greater distance from the second transverse cubital, and in the spurs and metatarsus being longer.

10. **Hylotoma fascialis.**

Hylotoma fascialis, Norton, Trans. Amer. Ent. Soc. i. p. 69 (1867)[1].

Hab. MEXICO (*de Saussure*[1]).

This species is allied to *H. pœcila*, but is readily known from it by the shorter antennæ, wholly white fusco-testaceous tibiæ and tarsi (except the apices of the latter), and by the narrower fuscous clouds in the wings, the apical portion of which only

commences at the second transverse cubital nervure. The apex only of the posterior tibiæ is fuscous.

From *H. nigriceps* it differs in having two vittæ on the mesonotum, no black mark on the pectus, while only the tips of the tarsi are black; the third transverse cubital nervure is not curved, nor is the third cubital cellule wider above than below, as it is in *nigriceps*, while it is perceptibly shorter (especially on the upperside) than the second; the transverse median cellule is received before the middle of the cellule; and the second recurrent nervure is received further from the second transverse cubital.

11. **Hylotoma nigriceps.** (Tab. IV. fig. 1, saw.)

Lutea, antennis (basi excepta) vertice læte, mesosterno, abdominis apice, tarsis tibiarumque apice nigris; alis flavescenti-hyalinis, apice cæruleo-fumato, cellula cubitali tertia apice producto, stigmate et costa testaceis.
Long. 9 millim., ♂ $7\frac{1}{2}$ millim.

Hab. NICARAGUA, Chontales (*Janson*).

The antennæ are a little shorter than the abdomen, thickly pilose, the two basal joints testaceous, the base of the terminal joint more or less fuscous. The face from below the frontal area with the mandibles pale testaceous; the apex of the mandibles piceous; behind the ocelli the head is brownish testaceous. The frontal area is rounded behind, projecting at the sides at the frontal ridge, the apex is truncated. The antennal fovea tapers gradually to the apex; at the base is a raised point. The third cubital cellule is much wider above at the apex than it is on the lower side; the second recurrent nervure is received very close to the second transverse cubital. The spurs and calcaria are white.

What is probably the male agrees with the female in coloration, except that the vertex is entirely black, or very nearly so; the frontal area is sharply pointed behind, not rounded as in the female, while the third cubital cellule is not nearly so much produced at the apex.

12. **Hylotoma lepida.**

Hylotoma lepida, Klug, Jahrb. i. p. 239. 53; Norton, Trans. Amer. Ent. i. p. 71[1].

Hab. MEXICO, Orizaba[1].

13. **Hylotoma consobrina.**

Hylotoma consobrina, Norton, Trans. Amer. Ent. Soc. iv. p. 78[1].

Hab. MEXICO[1].

14. **Hylotoma semifusca.** (Tab. I. fig. 11.)

Hylotoma semifuscus, Norton, Trans. Amer. Ent. Soc. i. p. 69; Cat. p. 39. no. 23[1].

Hab. MEXICO (*de Saussure*), Orizaba[1].

A species very closely allied to, but quite distinct from *H. annulipes*. It has two

longitudinal black lines on the vertex; and the pectus is more or less black. The antennæ are shorter and thicker, the frontal area is truncated, not rounded at the apex, and the sheaths of the saws are entirely black.

15. **Hylotoma annulipes.** (Tab. I. figg. 2; 2 *a*, maxilla.)

Lutea, antennis (basi excepta) abdominisque apice nigris; ore facieque albidis; vertice pro parte nigro, vel toto testaceo; pedibus nigris, coxis, trochanteribus femoribusque anterioribus dimidio apicali testaceis, tibiis anterioribus fere totis, posterioribus basi et basi tibiarum læte albidis; alis flavo-hyalinis, apice læte fumatis.
Long. 9–10 millim.

Hab. Guatemala, San Gerónimo (*Champion*); Panama (*Boucard*).

The antennæ are as long as the abdomen, closely and densely pilose. The frontal area is semitruncated behind, six-angled; the antennal fovea is wide, and tapers gradually to the point; there is no tubercle at the base. The clypeus is roundly incised. In the female the vertex is more or less marked with black, the ground-colour being brownish testaceous; sometimes the black is entirely absent. The face from below the frontal area is white, as are also the mandibles. The third cubital cellule is broader than long; at the top and bottom of the second and third transverse cubital nervures are two bullæ; from each bulla on the second nervure runs a spurious vein, which joins the bullæ on the third nervure. The second recurrent nervure is received a little past the second transverse cubital; the basal nervure, costa, and stigma at the base are testaceous; from the apical half of the stigma they are fuscous; at the extreme base of the wings the nervures (save the costa itself) are deep black. The amount of black on the apex of the abdomen varies; usually the four apical segments are black above and at the sides, but not beneath; the sheath of the saw and the cerci are testaceous.

The intensity of the fuscous colour of the apex of the wings varies; the third transverse cubital nervure is curved. The spurs are pale.

The male is similar, save that the vertex and the head behind are quite black.

16. **Hylotoma bipartita.**

Lutea, vertice, macula magna pleurali, abdominis apice, coxis posticis, femoribus, tibiarum posteriorum basi tarsisque nigris, tibiis albidis; alis flavescenti-hyalinis, apice fumatis.
Long. 12 millim.

Hab. Panama, Bugaba (*Champion*).

In the only specimen I have the flagellum is broken off; the scape is testaceous. The frontal area is longer than broad, truncated before and behind, six-angled; the antennal field is deep, sharply pointed at the apex; at the base is a roundish fovea. From the frontal area a ridge runs towards the eyes. The second cubital cellule is about one third longer than the third, which is dilated at the apex. All the knees are white; the anterior femora are testaceous in front on the lower side, and the anterior tarsi are testaceous at the base. The middle of the head behind is obscure testaceous.

Closely allied to *H. albitibialis*, but larger and broader; the abdomen is longer, the vertex broadly black; the frontal area broader behind; the transverse median nervure is received almost in the centre of the cellule, the third cubital cellule is longer, the nervures are much deeper in tint, the anterior femora are broadly black, and the apices of tibiæ are not black.

17. **Hylotoma albitibialis.**

Lutea, antennis (apice excepto), macula mesosterni, abdominis apice, femoribus posterioribus fere totis, tarsis apiceque tibiarum nigris, tibiis albidis; alis flavescenti-hyalinis, apice fumatis, costa et stigmate testaceis.
Long. $8\frac{1}{2}$ millim.

Hab. GUATEMALA, Zapote (*Champion*).

The antennæ are a little longer than the head and thorax, and thickened but very slightly towards the apex; the frontal area is truncated behind, distinctly six-angled, longer than broad; the antennal fovea wide, deep, and with a small tubercle. The clypeus is but very slightly incised; the third cubital cellule is not much longer than wide, wider at the apex than at the base; the second recurrent nervure is received towards the basal fourth of the third cubital cellule; there are two bullæ in each of the second and third transverse cubital nervures, which are joined by spurious veins. The calcaria are long and reach beyond the middle of the metatarsus. The black mark on the mesosternum may be divided in the middle.

18. **Hylotoma fasciatipennis.**

Rufo-testacea, antennis nigris, basi testacea; pedibus pallide testaceis, tibiis apiceque tibiarum læte et abdominis apice nigris; alis fumatis, medio flavescenti-hyalinis, costa et stigmate fere totis fuscis.
Long. fere 7 millim.

Hab. GUATEMALA, Capetillo (*Champion*).

The antennæ are a little longer than the head and thorax, pilose and not perceptibly thickened towards the apex; the frontal area is not much broader than long, semi-truncated behind; the antennal fovea is comparatively short and wide, and bears no tubercle; the clypeus is but very slightly incised. The ocelli are narrowly surrounded with black; the second recurrent nervure is received a very little past the second transverse cubital; the third cubital cellule is a little longer than wide, at the top it is not much wider than at the bottom at the apex; the third transverse cubital nervure is straight. The hyaline portion of the wings extends from the base of the stigma (which is testaceous) to the base of the median cellule. The three apical segments are more or less black above and at the sides; the sheath of the saw is testaceous, with the upperside black. The spurs are testaceous, short, and do not reach to the middle of the metatarsus.

Pl. 35

DIELOCERA.

Hylotoma, § 2, Klug, Jahrb. d. Insect. i. p. 240 (1834).
Dielocerus, Curtis, Trans. Linn. Soc. xix. p. 249 (1845).
Ptilia, Section 2, Norton, Trans. Amer. Ent. Soc. ii. p. 367 (1869).
Ptenos, Norton, l. c. iv. p. 77 (1872).
Hemidianeura, Kirby, List of Hymen. i. p. 48 (1882).

In this genus and in *Ptilia* the first transverse cubital nervure may be absent entirely, or be but very faintly indicated even in species where it is normally present; in other cases its absence would appear to be a secondary sexual character. The main distinction between *Dielocera* and *Ptilia* is that in the former the second cubital cellule (or first when the first transverse cubital nervure is absent) receives both recurrent nervures, while in *Ptilia* is receives only one.

I cannot look upon the absence of the first transverse cubital nervure as of generic value, because, as above stated, it tends to become obsolete even in species where it, as a rule, is found; in nearly all the Hylotomina it is bullated, and there can be no doubt that the "bulla" is the cause of the partial or complete obliteration of the nervure. Even the point of difference between *Dielocera* and *Ptilia* I have just mentioned must be accepted with reserve; for I find that when the second recurrent nervure is interstitial (*i. e.* is united to the transverse cubital), it is apt to vary in position and may be received either in the second or third cubital cellule. I have not yet succeeded in finding other structural characters whereby these forms may be generically separated.

1. **Dielocera biramosa.** (Tab. I. figg. 10, ♀, *Didymia biramosa*; 10 *a*, labrum; 10 *b*, maxilla; 10 *c*, mandible.)

Hylotoma biramosa, Klug, Jahrb. d. Insect. i. p. 242. 64 (1834)[1].
Ptilia biramosa, Norton, Trans. Amer. Ent. Soc. i. p. 61 (1867).
Ptenus (?) *biramosus*, Kirby, List of Hymen. i. p. 532.

Hab. Mexico [1], Vera Cruz, Orizaba.

2. **Dielocera imitatrix.** (Tab. I. figg. 4, ♀, *Ptilia imitatrix*; 4 *a*, head.)

Nigra, pronoto, tegulis, mesosterno scutelloque rufo-testaceis; pedibus albis, tarsi tibiisque posticis dimidio apicali nigris; alis fumatis.
Long. 11 millim.

Hab. Guatemala, Dueñas (*Champion*).

The antennæ are a little longer than the thorax, shortly and closely pilose. The clypeus bears a few scattered punctures, and is slightly incised at the apex. The sutures on the vertex are deep and broad; there is a transverse one behind the ocelli; the frontal area is long, depressed; the labrum is piceous; the outer sides of the mesonotum are dull testaceous. Only the upper fourth of the mesosternum is reddish

testaceous. The head projects behind the eyes, which are oblong; the first cubital cellule is as long as the second on the lower side, but much shorter on the upper, owing to the radial nervure issuing from the stigma. The cubital nervure is curved at the base and issues from the transverse basal; the third cubital cellule is longer than second; the cubital nervure ends a little beyond the third cubital cellule; the first recurrent nervure is received quite close to the first transverse cubital nervure, the second in the middle of the cellule opposite the horny point. There is a bulla on the first transverse cubital nervure, one on the junction of the second recurrent with the cnbital, on second and third transverse cubital, and on the stump of the cubital after the latter; there is a horny point in costal cellule.

3. **Dielocera filiformis.**

Ptilia filiformis, Norton, Trans. Amer. Ent. Soc. i. p. 62 (1867); Cat. p. 32, p. 2 [1] (♀).
Hemidianeura scapularis, Kirby, List of Hymen. i. p. 49. no. 3, t. 3. f. 15 [2] (♂).

Hab. Mexico, Oaxaca [2], Cordova [1].

This is a smaller species than *D. imitatrix*, and differs from it otherwise in having the scutellum black, the testaceous colour under the wing more extended, the four anterior femora for the greater part and only the extreme apex of the hinder tibiæ black, and the second recurrent nervure is received quite close to the third transverse cubital.

4. **Dielocera crassa.**

Rufa, antennis, capite, pectore pedibusque nigris; tibiis tarsisque 4 anterioribus sordide testaceis; alis fuscis, costa stigmateque nigris.
Long. 6 millim.

Hab. Mexico, Presidio (*Forrer*).

The antennæ are stout, roughly pilose, and not much longer than the thorax; the face is finely punctured, not smooth and shining like the vertex; the mandibles are piceous. There is a large bulla in the first transverse cubital nervure; the first cubital cellule is longer on the lower side than the second, which is not quite double the length of the third; the first recurrent nervure is received quite close to the first transverse cubital; the second recurrent is interstitial. The legs are stout; the spurs not one third of the length of the metatarsus, which is about the length of the three following joints; the fourth joint is as long as the two preceding. The sheath of saw is deep black and pilose.

PTILIA.

Ptilia, St.-Fargeau, Mon. Tenthr. p. 49 (1823); Enc. Méth. x. p. 237 (1825).
Didymia, St.-Farg. & Serv. Enc. Méth. x. p. 574 (1825).
Scobina, St.-Farg. & Serv. l. c. p. 574.
Hylotoma, § 4, Klug, Jahrb. d. Insect. i. p. 245 (1834).
Rusobria, Cameron, Trans. Ent. Soc. 1878, p. 150.

1. **Ptilia versicolor.** (Tab. I. figg. 9, *Didymia versicolor*; 9 *a–c*, trophi; 9 *d*, saw; 9 *e*, antenna; 9 *f*, head.)

Hylotoma versicolor, Klug, Jahrb. d. Insect. i. p. 246. no. 83 (1834).
Didymia versicolor, Norton, Trans. Amer. Ent. Soc. i. p. 60[1].
Ptilia basipunctata, Kirby, List of Hym. i. p. 46. no. 12, t. 3. f. 11[2].

Hab. Mexico [1], Vera Cruz [2]; Guatemala, El Reposo 800 feet, Cahabon (*Champion*); Honduras.

The base of the wings in one or two specimens is quite black, the usual hyaline spot being entirely obliterated.

2. **Ptilia concinna.**

Hylotoma concinna, Klug, Jahrb. d. Insect. i. p. 246. no. 82, t. 2. f. 8 (1834)[1].

Hab. Mexico [1].

3. **Ptilia nasuta.** (Tab. III. figg. 1, ♀; 1 *a–b*, tarsus; 1 *c*, spurs: Tab. IV. figg. 2, maxilla; 2 *a*, saw.)

Nigra, nitida, genibus tibiisque anticis sordide testaceis, pronoto mesonotoque rufis; alis fumatis, fascia media apiceque hyalinis.
Long. 8 millim.

Hab. Panama, David, Chiriqui (*Champion*).

The antennæ are not much longer than the thorax, thickish, scarcely tapering towards the apex, fuscous black, covered with a short close pile. The front is considerably raised and bounded by the sutures, which are not very deep; the posterior part is separated from the ocelli by a deep suture, which, however, is not continuous, there being a ridge in the middle. The lower ocellus is placed in a deep and wide pit; the frontal area becomes narrower towards the apex, and is prolonged between the antennæ into a sharp-pointed keel, which bears the antennal fovea (which is small and indistinct) at its top; at the bottom its sides spread out, and it is bounded by a transverse furrow situated above the clypeus, which is convex and is truncated at the apex. The mandibles are piceous. The pronotum and mesonotum with the scutellum and upper half of the mesopleuræ are red, save the middle lobe of the mesonotum. The tegulæ are red. The fore wings are black at the base to the transverse median nervure, and the black cloud is continued along the lower border of the wing; a broad middle fascia extends from the stigma to the end of the second transverse nervure, the part below the cubital nervure being narrower than the upper, which does not extend much beyond the third transverse cubital nervure. The first transverse cubital nervure is faintly indicated at the top, nearly opposite the first recurrent nervure, which would make the first cubital cellule longer than either the second or third, the indication of the first transverse cubital nervure being at a little distance from the base of the stigma; the third cubital

cellule is a little longer than the second, and its outer bounding nervure is curved; the second recurrent nervure is received a little past the second transverse cubital, the transverse median a little in front of the middle of the cellule. The posterior wings are only blackish at the base.

This species seems to agree with *P. compressicornis*, Cam., in coloration, except that the latter has the wings only darker at the apex.

4. **Ptilia fusca.**

Ptilia fusca, Klug, Jahrb. d. Insect. i. p. 247. no. 87 (1834) [1].

Hab. Mexico [1].

SERICOCERA.

Sericocera, Brullé, Hymén. iv. p. 669 (1846).
Cyphona, Dahlbom, Comp. Tenth. p. 6 (1835).
Gymnia, Spinola, Mem. Accad. Torino (2) xiii. p. 23.
Trailia, Cameron, Trans. Ent. Soc. 1878, p. 148.

I have unfortunately no American species of *Schizocera*; but a comparison of *Sericocera* with European species of that genus shows that the only points of difference between them of any importance is that in *Schizocera* the antennæ are placed immediately over the mouth and the epistoma is not keeled, while in *Sericocera* the latter is carinated as in *Hylotoma*, and the antennæ are situated in the middle of the head. The antennæ in *Sericocera* are longer in both sexes, and the lanceolate cellule is very shortly constricted in most of the species; but this is also the case in some species of *Cyphona*. In the majority of the species there are four cubital cellules; but the first transverse cubital nervure is bullated largely in the middle, so that it is almost obliterated, and in some cases no trace of it is visible at all, even in species where it is normally present to some extent at least. Hence no great reliance can be placed on the absence of this nervure as a generic character. The greater length of the antennæ in the American species compared with those of the European species of *Cyphona* can scarcely be looked upon as a generic character, and in point of fact some of the Neotropical species have them comparatively short; so that *Cyphona* (the type of which has the antennæ situated as in *Sericocera* and the front carinated) must be regarded as identical with *Sericocera*; but inasmuch as the same species formed the type for both *Cyphona* and *Schizocera*, Brullé's name must be used in preference. What I have said (*antea*, p. 42) about the absence of the first transverse cubital nervure applies equally well to *Sericocera*.

1. **Sericocera edwardsii.**

Sericocera edwardsii, Cresson, Trans. Amer. Ent. Soc. viii. p. 2 (1880) [1].

Hab. Mexico [1], Mazatlan.

2. **Sericocera mexicana.**

Gymnia mexicana, Kirby, List of Hymen. i. p. 43, t. 3. f. 17 (1882).

Hab. MEXICO, Orizaba.

This species does not seem to differ much from *S. edwardsii*.

3. **Sericocera alternator.** (Tab. III. figg. 4, ♀ ; 4 *a*, tarsus ; 4 *b*, calcaria ; 4 *c*, maxilla ; 4 *d*, saw ; 5, ♂ ; 5 *a*, head and antennæ of ♂ .)

Sericocera alternator, Norton, Trans. Am. Ent. Soc. i. p. 53 ; Catal. p. 23. 3 [1].

Hab. MEXICO [1], Jalapa (*de Saussure*) ; GUATEMALA, Quiche Mountains 7000 to 9000 feet (*Champion*).

I presume the Quiche specimen is identical with Norton's species. Norton says that the anterior legs are pale in front ; and this is the case with my specimen, but the paleness is owing to a dense covering of short white hair. The antennæ (which were defective in Norton's solitary specimen) are scarcely longer than the thorax, are rather thick, and taper but slightly towards the apex ; they are densely covered with short black hair and grooved at the side. In the left antennæ there is on the underside a projecting process, which is nearly as long as the breadth of the second joint, as broad as half its length, and truncated at the apex ; it seems to be a malformation. The antennal fovea is absent, or nearly so ; the frontal area is flat and ill defined ; the lower ocellus is not in a basin, and round the innerside of the outer two is a short, thick, blunt ridge. The transverse median nervure is received in the centre of the cellule. The female has the mesonotum quite black, or rather bluish black, the black on the sternum is more extended up onto the pleuræ ; the antennal fovea is small, round, and not very deep ; the ridges at the side of the ocelli are not so clearly defined ; the front between the antennæ is sharper, almost carinated ; the anal segments above are pitted with round, shallow punctures ; the anal appendages black, projecting and pilose ; the antennæ are as long as the abdomen and half the thorax, thin, covered with long black hair, which projects from the sides and below, but not from the upperside.

4. **Sericocera quercus.** (Tab. I. fig. 15, ♀ .)

Rufo-flava, antennis, capite, sterno, macula mesonoti, metanoto pedibusque nigro-violaceis ; alis violaceo-fumatis.

Long. 11 millim.

Hab. GUATEMALA, Quiche Mountains 7000 to 9000 feet (*Champion*).

The frontal sutures are deep ; frontal area not well defined from the surrounding region, flat, the apex narrower and with a fovea which is longer than broad, narrower at the apex, and separated from the ocelli by a broad and flat ridge ; lower ocellus in a shallow depression. Clypeus truncated at the apex. Antennæ shorter than

thorax, very shortly pilose, the apex slightly thickened. The recurrent nervures are received in the basal third of the cellules; the third cubital cellule is dilated at the apex above, the upperside being more than double the length of the lower; the third cubital nervure curved. The wings are lighter-coloured towards the apex.

Differs from *S. alternator* in having the middle lobe of the mesonotum blue, in the anterior legs being entirely black in front, in the blue on the metathorax extending to the apex of the scutellum, in the darker-coloured wings, in the first transverse cubital nervure being present, but with a bulla in the centre, in the first recurrent nervure being received in the basal third of the cellule, not in the middle as with *S. alternator*, and by the third cubital cellule being double the width of the bottom at the top.

Mr. Champion sends along with the female a small bit of the leaf of an oak, on the lower side of which are arranged sixteen eggs in four rows. The eggs are about 1 millim. in length, of the usual shape, pinkish in colour, and are but slightly embedded in the leaf, from which they stand erect.

5. **Sericocera villosa.** (Tab. II. fig. 15, ♀.)

Sericocera villosus, Norton, Trans. Am. Ent. Soc. i. p. 52; Cat. p. 23 (♀).
Sericocera plumicornis, Norton, l. c. p. 53 (♂); Cat. p. 22 (♂)[1].

Hab. MEXICO, Cordova (*de Saussure*)[1]; GUATEMALA, Quiche Mountains 7000 to 9000 feet (*Champion*).

The male has the wings lighter-coloured than in the female. With it the first transverse cubital nervure is sometimes obliterated, and the accessory nervure in the hind wings is obliterated entirely; in the female the former is appendiculated towards the middle.

6. **Sericocera leucotarsis.** (Tab. III. fig. 2, ♀.)

Nigro-cærulea, pronoto flavo-rufo; tarsis posterioribus albidis; alis fumatis, cellula cubitali tertia breviore, apice non producto.
Long. $7\frac{1}{2}$ millim.

Hab. GUATEMALA, Cerro Zunil, 4000 feet (*Champion*).

The front between the antennæ sharply projects and bears on its apex above the small, oval, but deep and clearly defined antennal fovea; the lower ocellus has a deep surrounding furrow behind; the frontal area is depressed in the middle; the sutures on the vertex are narrow behind the ocelli. The antennæ are a little shorter than the abdomen, covered with black, moderately long hair. The transverse median nervure is received in the middle of the cellule; the first recurrent nervure a little before the middle; the second in the middle; the third cubital cellule is of nearly equal length throughout and is half broader than long. The metatarsus is as long as all the other joints together; the spurs are black; the two apical joints black; claws simple. The blotch is narrow, and at its termination there is a thin pale band going across the segment.

Easily known from *S. villosa* by the short non-dilated third cubital cellule and black coxæ and femora, these being in *S. villosa* yellowish, it having besides a distinct first transverse cubital nervure.

7. **Sericocera leucopoda.** (Tab. III. fig. 3.)

Nigra, clypeo, labro, antennis basi pedibusque albidis, tarsis tibiarumque posticarum apice nigris; pronoto, mesonoto cum scutello mesopleurisque supra rufis; alis fumatis, cellula cubitali tertia altitudine breviore, apice non producto.

Long. 7 millim.

Hab. PANAMA, Bugaba (*Champion*).

The frontal sutures are deep; the frontal area is raised, and has a thick sloping border, is hollow in the centre, and becomes narrower and shallower towards the apex; but the apex has a small depression which is separated from the upper hollow by a shallow ridge. The apical ocellus is bounded by the deep furrow of the frontal area. The front between the antennæ is carinated; the clypeus is truncated at the apex. The middle lobe of the mesonotum and the base of the pronotum are marked with black. The transverse median nervure is united to the accessory nervure, which ends at the junction of the two; the first recurrent nervure is received in the basal third of the cellule, the second close to the second transverse cubital nervure; the third cellule is shorter than broad, the top a little narrower than the bottom; the third transverse cubital nervure is curved. The antennæ are filiform, densely pilose, and nearly as long as the abdomen; the basal joints are white on the underside, as is also the face between the antennæ and the clypeus.

8. **Sericocera læta.**

Nigra, facie palpisque sordide albidis; prothorace, mesonoto cum scutello, pleuris tegulisque rufis; pedibus albis, tibiis dimidio apicali tarsisque nigris; alis fumatis, stigmate fusco.

Long. 6 millim.

Hab. PANAMA, San Felix (*Champion*).

The antennæ are thin, as long as the thorax and head together, densely pilose, tapering towards the apex; sutures on vertex indistinct; frontal and antennal areas obsolete, the lower ocellus situated in a very shallow pit; clypeus shortly and roundly incised. Abdomen short, not much longer than the thorax, truncated at the apex; sheath covered with long hairs. Wings long; third cellule almost square, not longer than the first; second dilated at apex, and with a horny point.

Allied closely to *S. leucopoda*, but is a shorter and broader insect; the third cubital cellule is longer, and the third transverse cubital nervure is not so bent; the second recurrent nervure is received further from the second transverse cubital; the pit in which the lower ocellus is placed is not so deep nor so well marked as in *S. leucopoda*, and the tibiæ are more broadly marked with black. The nervure along the upperside of the radial cellule is very distinct, but does not form a cellule at the apex.

9. **Sericocera rufiventris.**

Nigra, parva, pilosa, abdomine flavo-testaceo, alis fumatis. ♀.
Long. 5 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

The antennæ are as long as the abdomen, filiform, of nearly equal thickness throughout, densely pilose. Head with the front very wide and broad, projecting, but not sharply; frontal sutures deep, broad, shining; frontal area not raised from the surrounding part nor depressed in the centre. Antennal fovea large, oval, of moderate depth; clypeus truncated; face covered with long scattered white hair. The third cellule is a very little longer than the second on the lower side, and considerably longer on upper, where it is dilated; recurrent nervures received in the basal fourth of the cubital cellules; transverse median nervure received a little before the middle of the cellule; blotch large, broad, extending across the whole segment. Sheath of saw black, covered with a short white down. The metatarsus is shorter than the succeeding joints together.

10. **Sericocera cærulea.**

Cærulea, alis fumatis, pedibus nigris, pilosis. ♀.
Long. 5–6 millim.

Hab. PANAMA, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

The antennæ are slender, longer than the abdomen, densely covered with a longish black pubescence. The front is broad, somewhat triangular above the antennæ, and with a small fovea at the apex; the face is covered with longish hairs. The first transverse cubital nervure is distinct; the second cellule is not much longer than the lower side of the third, which is largely produced on the upperside, where it is as long as the first and second cellules together; the second recurrent nervure is received not far from the second transverse cubital; the transverse median before the middle of the cellule. The abdomen is not much longer than the head and thorax, and becomes gradually narrowed towards the apex. The blotch is very large, and extends almost right across the segment.

11. **Sericocera truncata.**

Nigra, nitida, tibiis anticis sordide testaceis, alis fumatis.
Long. fere 6 millim.

Hab. GUATEMALA, Dueñas ♀, San Gerónimo ♂ (*Champion*).

The antennæ are as long as the abdomen, shortly and densely pilose, and tapering towards the apex; the sutures on the vertex are distinct, deep; the vertex behind the ocelli separated from the latter by a deep furrow; and a narrower and less deep furrow runs from the upper ocelli to the eyes. Frontal area subdistinct, rounded at the lower

end and immediately before the antennal fovea, which is not very deep and longer than broad; the lower ocellus is placed in a rather large depression. The clypeus is truncated at the apex; there is a large and moderately deep depression on each side above it. The wings are longer than the body; the apex is somewhat lighter than the base. the first transverse cubital nervure is absent, but is indicated by a light band; the third is oblique, not curved; the third (second) cubital cellule is not much longer than broad, the apex at the top a very little wider than at the bottom; in the second (first) cubital cellule is a distinct horny point. The transverse median nervure is received a very little beyond the middle. The stigma is fuscous on the lower half. The body is short and thick; the abdomen is not much longer than the head and thorax, and has the apex truncated, with the saw but very little projecting; the feet are longish; the femora reach near to the apex of the abdomen.

What I take to be the male has the antennæ nearly as long as the abdomen and half of the thorax; they are covered, but not very closely, with black hairs, which are very nearly double the diameter of the antennæ in length; the antennæ taper distinctly towards the apex. The apical third of the anterior femora and the tibiæ in front are testaceous. The greater part of the abdomen beneath is dirty white; the three basal segments above are also dirty yellowish white. As usual with the male, the sutures on vertex are not so deep.

Sericocera piciventris, Kl., from Brazil, agrees with the male in coloration, except that the legs are entirely black, and it is also a larger species; but Klug only describes the female of his species, which thus does not agree with *S. truncata* ♀ in coloration. *S. nigrita*, Klug, again, agrees with the female in coloration, but only the male is described by Klug.

12. **Sericocera crassitarsis.**

Nigra, nitida, parva, antennis basi, tegulis, genibus, tibiis tarsisque albido-testaceis; alis fere hyalinis, stigmate fusco, cellula cubitali tertia apice producto. ♂ ♀.

Long. 5 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

The antennæ are not longer than the thorax; the apical joint thin at the base, then becoming thick and tapering but very slightly towards the apex; covered with a very sparse microscopic pile. The front is broad; the vertex behind the ocelli has no transverse furrow, nor is there a transverse furrow proceeding from the ocelli to the eyes. The lateral furrows on the vertex are broad and deep, and reach to a little below the base of the antennæ. There is no defined frontal area; but the lower ocellus is in a basin, and the antennal fovea is large, oval, and deep. The front between the antennæ is broad and curves down gradually. The foveæ above the clypeus are small; the mandibles and apex of labrum are piceous, and the face is covered with scattered white hair. The third cubital cellule is at the bottom nearly double the length of the first

(second) transverse cubital nervure, which is not half the length of the second (third); the first transverse cubital nervure is absent; the second recurrent nervure is received quite close to the second (first) transverse cubital; the transverse median nervure is received in the basal third of the cellule. The posterior tibiæ are darker than the anterior; they are thin at the extreme base, but thicker than usual for the rest.

PACHYLOTA.

Pachylota, Westwood, Arc. Ent. i. p. 24 (1841).

The type of this genus was supposed to be from West Africa; but this no doubt is a mistake for South America. The genus contains only three species—two (including *P. audouinii*, West.) from South America and one from Mexico. The absence of spurs makes it a very distinct genus; but as *P. varicolor* has calcaria it is doubtful if it can be regarded as a *Pachylota*.

1. **Pachylota varicolor.**

Pachylota varicolor, Norton, Trans. Amer. Ent. Soc. iv. p. 79 (1872) [1].

Hab. Mexico [1].

Norton says that all the palpi are 4-jointed, and this is said to be also the case with the type species; but in *P. sulcicornis*, Cam., the maxillary palpi are certainly 6-jointed, the three apical being much thinner than the three basal, and the joints can only be seen with a good lens. The labial palpi are, as usual, 4-jointed.

Subfam. *SYZYGONINA*.

This subfamily may be distinguished as follows:—

Antennæ short, thick, pilose, 6–7-jointed. Tibiæ spined. One radial cellule shortly appendiculated. Three or four cubital cellules. Transverse basal nervure interstitial. Lanceolate cellule obsolete. Posterior wings appendiculate; one discoidal cellule; accessory nervure obsolete. Scutellum large, longer than broad, rounded, and projecting at the apex, truncated behind.

Syzygonia has usually been regarded as belonging to the Cimbicina; but it differs in so many important points from them that clearly it and its allies should form a separate subfamily, which will also include *Perga*. Kirby forms a separate subfamily for *Loboceras*, *Perantherix*, and *Aulacomerus*. The latter genera certainly differ from *Syzygonia* and *Incalia* in the structure of the trophi and in one or two other points; but I am not prepared to say that the form of the trophi (for the other differences are not of great importance) is sufficiently important to raise the genera I have to subfamily rank in view of so much agreement in other respects between them and *Syzygonia*. It

is doubtful, furthermore, if the relationship between the Neotropical genera and *Perga* is real, for the points of agreement (apart from the spined tibiæ, the enlarged scapulæ, and an agreement in the form of the scutellum) consist in a reduction in the number of joints in the antennæ and palpi, and in the lanceolate cellule being obsolete; and these may have become degraded independently in both countries, so that on this view the resemblance in these respects cannot be looked upon as one of affinity. That the number of joints in the antennæ and palpi has been reduced rather than that six or seven was the number with the ancestral Tenthredinidæ is shown alike by the fact that the Siricidæ (which are certainly older than the Tenthredinidæ) have multiarticulated antennæ, and that in badly developed specimens of *Cimbex* and *Perga* the club shows two more joints than is usually present, that is to say, the joints have become amalgamated towards the apex. This view is further borne out by the antennæ with few joints being always clavate or semiclavate and short. The lanceolate cellule is one of the characteristic features of the Tenthredinidæ. In the few cases where it is absent there is either an abbreviation in the joints of the antennæ or palpi, or both; and, so far as I know, it is only absent in genera inhabiting Australia or South America. That it has become obsolete is proved by its excessive reduction in *Perreyia* &c.; while the accessory nervure in the hind wings is often absent in species where it is usually present.

Subtribe *SYZYGONIDES*.

Labium entire. Labial palpi 3-jointed; maxillary 4-jointed. Cubital nervure issuing from the transverse basal nervure. Spines and calcaria short, thick.

The above characters sufficiently distinguish the Syzygonides from the Lobocerides. At present the only genera I can refer to this subtribe are *Syzygonia* and *Incalia*. Whether *Cephalocera*, Klug, should be referred to it or to the Lobocerides is a question that can only be settled by an examination of the type.

INCALIA.

Incalia, Cameron, Trans. Ent. Soc. 1878, p. 143.

This genus is exclusively Neotropical, and contains at present only one species. It differs from *Loboceras* in having the antennæ thicker throughout, in the spurs being much shorter and thicker (not much more than one third of the length of the metatarsus), in the hinder tibiæ bearing a spine, and in the palpi having fewer joints (the maxillary palpi being 4- and the labial 3-jointed), besides being short and thick. The basal joint of the maxillary palpi is the shortest, being, however, not much shorter than the third, which, again, is shorter than the second; the fourth is the longest and thinnest. The joints of the labial palpi are subequal. The mandibles are

long and acute; the apical tooth is long; at the middle the mandible thickens towards the base, and where the thickening commences the edge is indented.

The genus *Syzygonia* (from Brazil) is very closely related to *Incalia*; but may be known by its bare, distinctly clavate, 6-jointed antennæ.

Syzygonia has the palpi 4- and 3-jointed, as with *Incalia*.

1. **Incalia hirticornis.** (Tab. III. figg. 6, ♀; 6 *a*, antenna; 6 *b*, labium; 6 *c*, tarsus and apex of tibia; 6 *d*, maxilla; 6 *e*, head, from front.)

Incalia hirticornis, Cameron, Trans. Ent. Soc. 1878, p. 143[1]; Kirby, List of Hymen. i. p. 32, t. 2. f. 16.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).—Amazons, Ega [1].

Subtribe *LOBOCERIDES*.

Labium with three lobes. Labial palpi 4-jointed; maxillary 6-jointed. Cubital nervure issuing from the costa. Spines and calcaria usually sharp and long.

CORYNOPHILUS.

Cephalocera, Klug (nec Latr.), Jahrb. d. Insectenkunde, i. p. 252.
Corynophilus, Kirby, List of Hymen. i. p. 32.

It is doubtful if the following species is congeneric with Klug's *Cephalocera pumila*, for the radial cellule can scarcely be said to be appendiculated, nor can I detect any traces of spines on the posterior tibiæ; but as the spines are apt to be broken off, no great reliance can be placed on their absence on a single specimen. In the form of the antennæ it agrees very well with *Corynophilus*, as it does also in neuration (with the above-mentioned exception), and it differs from *Loboceras* in the short thick spurs and in the form of the antennæ. I think it best therefore to treat the only species I have as a *Corynophilus*.

The type of the genus is from Brazil.

1. Corynophilus ruficollis.

Nigro-violaceus, antennis nigris, pilosis, prothorace mesonotoque cum scutello rufis, apice coxarum, trochanteribus oreque sordide albidis; alis fumatis.

Long. 6 millim.

Hab. Panama, Bugaba (*Champion*).

The antennæ become gradually thickened towards the apex, and are about the length of the thorax with the head; the third joint is about one fourth longer than the following, which is a little longer than the fifth; the sixth is a very little longer than broad; last as long as the two preceding together. The sutures on vertex are deep and reach to the antennæ; from the lower ocellus runs a suture to a transverse margin

which runs from one antenna to the other. Clypeus truncated at apex; labrum rounded. Mandibles large, with one large apical tooth. Blotch very wide, white. Abdomen longer than head and thorax together. Legs of moderate length; coxæ stout. The metatarsus is shorter than the other joints together; the long spur reaches to its middle. Claws small, simple. The sheath of saw is covered at the apex with long hairs; the saw itself bears stout waved teeth. The radial cellule has a stout bordering nervure above, which does not form a distinct appendicular cellule at the apex. First cubital cellule more than double the length of second on lower side; second one fourth longer than broad. The basal nervure is interstitial. The breast inclines to piceous in colour, as does also the pleuræ immediately below the wings, and the prothorax laterally. The palpi are 4- and 6-jointed; first joint of maxillary half the length of second, which is about the same length as fifth, third and fourth subequal; sixth longer than any of the others; the basal joint of labial is thinner than the rest and longer than fourth; second and third subequal, broader than long.

LOBOCERAS.

Cephalocera, Norton, Trans. Amer. Ent. Soc. i. p. 5. 1; Cat. p. 20.
Loboceras, Kirby, List of Hymen. i. p. 79 (1882).

This genus is closely allied to *Cephalocera* and *Incalia*, with both of which it agrees in having the same number of joints in the antennæ and in the neuration of the wings, but differs from *Incalia* at least (the structure of the trophi in *Cephalocera* is unknown) in having the palpi 6- and 4-jointed, the spurs much longer, while there are spines only on the middle legs; in *Incalia* and *Cephalocera* they are on the posterior tibiæ.

The posterior coxæ are large, reaching to the fourth abdominal segment; the claws are simple. The mandibles are formed pretty much as in *Incalia*; but, as above mentioned, the palpi are very different, being long, filiform, and 6- and 4-jointed. The first joint of the maxillary palpi is small, the others subequal. The labium is large and broad; the palpi have the two first joints the longest, the two apical ones a little shorter and thicker.

The genus is exclusively Neotropical, and contains eight Central-American species and two from Amazonia.

1. Loboceras varicorne.

Testaceum, capite (ore excepto), antennarum medio, scutello, abdominis apice, tarsis tibiisque posticis fere totis nigris; alis fumatis, medio flavo-hyalinis.
Long. 9 millim.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

The antennæ are not much longer than the head and thorax, densely pilose, subclavate; third joint about one half longer than fourth; the last two joints subequal;

the three middle joints are black, the others testaceous. The lateral furrows on vertex and the transverse one behind the ocelli deep; the lateral ones run into a deep transverse suture over the antennæ, and immediately behind a projecting ridge, which has a distinct border and is emarginate in the middle. A furrow surrounds the lower ocellus behind; the space below it is blistered. Clypeus rounded, shorter than the labrum, which is semicircular; the sides of the scutellum are smooth and shining, the centre somewhat blistered, slightly hollow, and there is a depression at the apex which is slightly emarginated. In front the metanotum is black. The yellowish band in the wings extends from the commencement of the cubital nervure to the end of the stigma. The third cubital cellule is small, not half the size of the second, and not much longer than the first; the first recurrent nervure is received nearly in the middle of the second cellule; the second is nearly interstitial; the transverse median nervure is received before the middle of the cellule. Behind, the middle tibiæ and tarsi are more or less fuscous; the posterior tibiæ are testaceous at the base.

2. **Loboceras klugii.** (Tab. I. figg. 1, ♀; 1 *a*, antenna: Tab. IV. figg. 3–3 *a*, *b*, trophi.)

Luteum, pilosum, antennis (basi excepta) abdominisque apice nigris, pedibus albidis, tarsis apice et tibiarum 4 posticorum dimidio apicali femoribusque posticis dimidio apicali nigris; alis flavescenti-hyalinis, apice fumatis, costa et stigmate flavis.

Long. 10 millim.

Hab. Guatemala, San Gerónimo (*Champion*); Panama, Bugaba (*Champion*).

Antennæ pilose, becoming gradually thickened towards the apex, but not forming a club. The first joint is longer than the second; third one half longer than the fourth, which is scarcely so long as the fifth; the three last subequal; the last joint projects more above than on the lower side. The eyes reach to near the base of the mandibles. The clypeus is truncated at the apex; labrum small, rounded at apex. The mandible has a large apical tooth and two small blunt subapical ones; the first at the base of the apical tooth, the second close to the base of the mandible. Wings with one radial cellule shortly appendiculated, and four cubital cellules; the first small, the second longer than the third, and the fourth is longer than the three basal; the second receives a recurrent nervure towards the apical third, the third one in the basal third. The basal nervure is joined to the cubital; the transverse median is received a little in front of the middle of the cellule; the frontal furrows are broad and shallow and bound the frontal area, which is somewhat raised; a furrow bounds the lower ocellus behind. The extreme apex of the anterior tibiæ is blackish fuscous; the apical half of the middle pair and more than half of the posterior one black. The apex of the middle femora before and behind and the apical half of the posterior are also black; the femora are pallid testaceous at the base.

3. **Loboceras saussurii.**

Testaceum, pilosum, antennis (basi excepta), vertice, femoribus, tarsis abdominisque apice nigris; coxis, trochanteribus tibiisque albidis; alis flavo-hyalinis, apice fumatis, costa nigra, stigmate testaceo.
Long. 8 millim.

Hab. Mexico, Orizaba (*de Saussure*).

The sutures on vertex are broad and deep, and there is a narrower one behind the ocelli; the former run down the sides of the frontal area and unite round its lower border, enclosing it completely, but at the angles of the area they are not so deep. The clypeus is very slightly incised at the apex; the mandibles are piceous at the apex. The first cubital cellule is small; the second is nearly double the length of the third, which is only a little longer than the first; the fourth is longer than the first three together. The curved first recurrent nervure is received close to the middle of the cellule; the second is interstitial, but it is more in the third cellule than in the second; the transverse median nervure is received a little in front of the middle of the cellule. The costa is black to near the commencement of the first cubital cellule; the apical cloud in the wings commences at the end of the stigma, and it curves back to the second transverse cubital nervure. The anterior femora are broadly white at the base. On the vertex the entire space bounded by the vertical and frontal sutures is black.

This species appears to be very closely related to *L. mexicanum*; but that has no black on the vertex. The costa is testaceous, like the stigma, and the tibiæ are testaceous.

4. **Loboceras calcar.** (Tab. I. fig. 12.)

Cephalocera calcar, Norton, Trans. Amer. Ent. Soc. i. p. 51; Catal. p. 20 (♀)[1].

Hab. Mexico [1].

This species differs from the others in having the first cubital cellule longer than the third, and in the transverse basal nervure being received quite close to the transverse basal.

5. **Loboceras mexicanum.**

Loboceras mexicanum, Kirby, List of Hymen. i. p. 80, t. 6. f. 4[1].

Hab. Mexico, Orizaba [1].

6. **Loboceras xanthostigma.**

Testaceum, pilosum, antennis, capite (ore excepto), abdominis apice, tarsis tibiisque posterioribus nigris; alis flavo-hyalinis, apice fusco, costa et stigmate flavis.
Long. 7–8 millim.

Hab. Panama, Bugaba (*Champion*).

The face below and a little above the antennæ is pallid yellow; the scape is more or

less testaceous; the last joint of the antennæ is longer than the preceding; the third cubital cellule is a little longer than broad; the second recurrent nervure is interstitial. The blotch is large and white.

7. **Loboceras fuscipenne.** (Tab. I. fig. 6, ♀.)

Luteum, antennis, capite (ore excepto), abdominis apice, tarsis tibiisque nigris; alis fuscis, cellula secunda cubitali puncto corneo oblongo, costa et stigmate nigris.

Long. $7\frac{1}{2}$–8 millim.

Hab. PANAMA, David (*Champion*).

The antennæ are densely pilose, nearly as long as the abdomen, and become thickened very gradually towards the apex; the last joints subequal. The face below the antennæ is pale testaceous; the clypeus is very slightly incised; the apex of the mandibles piceous. The second cubital cellule is double the length of the third, which is not much longer than broad; the first recurrent nervure is received close to the middle of the cellule; second close to the base of the third cellule; the transverse median in front of middle of cellule. There is a distinct horny point in the costal and second cubital cellules. Sometimes the second recurrent nervure is received in the second cubital cellule. The anterior tibiæ are fuscous behind; the spurs are long and sharp. The frontal sutures are deep and wide, the frontal area somewhat depressed in the centre; the front bears scattered punctures. Sometimes there is a black longish mark on the middle lobe of the mesonotum. The base of the antennæ and the part immediately above it testaceous.

8. **Loboceras nigriceps.**

Luteum, pilosum, ovatum, antennis, capite (ore excepto), tegulis, abdominis apice, tibiis tarsisque nigris; alis fuscis, costa nigra, stigmate fusco, nervo primo cubitali nullo.

Long. 5 millim.

Hab. MEXICO (*Sallé*).

The antennæ are short, not much longer than the thorax, thick, tapering very slightly towards the apex; the third joint is a little longer than the fourth; the last joint is longer than the sixth, which is shorter than the fifth. The frontal sutures are almost invisible; there is no frontal area, nor is there a furrow behind the lower ocellus. The transverse median nervure is received immediately in front of the cellule, the second recurrent in the same position. The anterior tibiæ are faintly fuscous in front, the four posterior are entirely black; the extreme apex only of the abdomen is black.

This species is readily known from *L. fuscipenne*, which it resembles very closely in coloration, by being smaller, by its more ovate body, by the first transverse cubital nervure being absent, or at least scarcely to be distinguished, by the shorter spurs (which are black and not half the length of metatarsus), by the second recurrent nervure being received nearer the middle of the cellule, by the second (first) cellule wanting the horny point, and by the black tegulæ.

ACORDULECERA.

Acordulecera, Say, Bost. Journ. i. 1835, p. 209.

1. **Acordulecera dorsalis.**

Acordulecera dorsalis, Say, Bost. Journ. i. 1835, p. 210; Norton, Trans. Amer. Ent. Soc. i. p. 49; Cat. p. 19 (♂ & ♀)[1].

Hab. North America.—Mexico [1].

The genus *Acordulecera* does not apparently, judging from the description, differ materially from *Perantherix*. If this view be found correct, the latter name must be dropped.

PERANTHERIX.

Perantherix, Westwood, Thesaurus Entomologicus Oxoniensis, p. 107.

Only two species of this genus have been described, and both are from Brazil. The genus is very closely allied to *Loboceras*, but is readily known from it by the antennæ having one joint less, only three cubital cellules, and by the second and third pair of tibiæ being provided with spines, while only the middle pair has them with *Loboceras*. The trophi are formed as in the last-named genus. The structure of the inner lobe of the maxilla is quite different from any thing I have seen in any other genus of the Tenthredinidæ. It is reticulated in a peculiar manner, and the form of the reticulation is different in the palpi of the two species I have examined. (See figures.)

1. **Perantherix westwoodii.** (Tab. III. figg. 12, ♀; 12 *a*, mandible; 12 *b*, antenna; 12 *c*, labrum; 12 *d*, maxilla; 12 *e*, head; 12 *f*, top of maxilla, highly magnified.)

Lutea, antennis, capite, mesonoto, tibiarum apice tarsisque nigris; alis flavo-hyalinis, fascia substigmaticali fumato, stigmate nigro, basi costaque flavis. ♂ ♀.

Long. 6 millim.

Hab. Panama, Bugaba 800 to 1500 feet (*Champion*).

The two basal joints of the antennæ are subequal, not much longer than broad, thicker than the other joints; third joint a little longer and thinner than the fourth, which is a little longer than the fifth; sixth longer than the fifth, thin and sharply conical at the apex; all the joints are thinner at the base than at the apex, and covered with long setæ, which are longest at the apex of the joints. On the head the frontal furrows are very flat, the frontal one is not defined, but there is a large round fovea above the antennæ; the labrum, clypeus, and mandibles are yellow. The mesonotum is punctured, black, except the scutellum; the middle lobe reaches to the tegulæ; the furrows shallow; there is no furrow in the centre. The calcaria are short and thick; the tarsi are a little longer than the tibiæ.

This species differs from *P. bimaculata* in having the mesonotum entirely black as well as the whole of the tarsi and the apex of the tibiæ. The frontal sutures are not at all so well developed, while the large fovea above the antennæ is absent in *P. bimaculata*, which has furthermore the frontal area deep. The mouth only is testaceous. The apex of the wing is hyaline, while in *P. bimaculata* the cloud extends to the extreme apex; the greater part of the stigma is black; the cloud fills the cubital and radial cellules, while in the other species the first cubital and base of radial are hyaline; the transverse radial nervure is received nearer the base of the cellule; the spurs are much shorter. The antennæ are shorter; the two basal joints are subequal, which is not the case with *P. bimaculata*, the second being with it longer than the first, besides being more cylindrical.

2. **Perantherix bimaculata.** (Tab. III. figg. 8, ♀; 8 *a*, tarsus; 8 *b*, antenna; 8 *c*, spurs; 8 *d*, claws; 8 *e*, top of maxilla, highly magnified.)

Lutea, pilosa, antennis (basi excepta), capite (facie excepta), maculis 2 mesonoti abdominisque apice et lateralibus basi nigris; pedibus pallide testaceis, tarsorum apice nigris; alis flavescenti-hyalinis, apice infumatis, stigmate flavo; costa nigra, apice flavo. ♀.

Long. 8–9 millim.

Hab. GUATEMALA, Panima (*Champion*).

Antennæ 6-jointed, becoming slightly thickened towards the apex, densely covered with bristle-like hairs; second joint double the length of first, which is scarcely one fourth shorter than the third, which is the longest. The three following become gradually shorter, the apical sharply pointed. Eyes very large and prominent, parallel, projecting in front, and occupying the greater part of the head, reaching to the base of the mandibles. Clypeus truncated at the apex. Frontal furrows deep, broad, running down along the side of the eyes to opposite the antennæ; frontal area shallow, longer than broad; the lower ocellus bounded behind by a deep furrow, which is sharply pointed behind. Legs: four hinder tibiæ with a longish sharply pointed spine on the outside, not far from the apex; four hinder spurs long and needle-like, one half of the length of metatarsus; inner spur on the anterior tibiæ thicker than the outer and cleft at the apex. Metatarsus longer than all the other joints together; apical joints truncated at the apex and without patellæ. The lobes of the mesonotum are not clearly indicated by furrows, but in the centre of middle one is a deep furrow. The scutellum is large, oval at the apex, truncated behind, the apex projecting and separated from the postscutellum by a deep furrow; cenchri not distinguishable. There is no blotch, but the base of the abdomen is depressed; the saw reaches to near the middle of the abdomen. Wings with one radial and three cubital cellules; the first cubital is more than double the length of the second, and receives a recurrent nervure close to the apical third; the second cellule is longer than broad, and receives a recurrent nervure a little behind the middle, where it is angled. The cubital nervure arises about three fourths of the

length of the stigma from the base of the latter, and curves towards it, so that the base is wider than the apex; the basal nervure is interstitial; the transverse median nervure is received a little in front of the middle of the cellule. The mesonotum is finely shagreened; the head is yellow from below the ocelli; the cloud in the wings extends from the apex of the stigma to the edge of the wing.

THULEA.

Thulea, Say, Bost. Journ. i. p. 213 (1835); Norton, Trans. Amer. Ent. Soc. i. p. 49.

1. Thulea nigra.

Thulea nigra, Say, Boston Journ. i. 1835, p. 213[1]; Norton, Trans. Amer. Ent. Soc. i. p. 49; Catal. p. 19. 1.

Hab. Mexico[1].

I cannot make out, from the description, the precise affinities of this genus, and place it provisionally here, as it must be related either to *Perantherix* or to the *Cimbicina*. The antennæ are 6-jointed; there are one radial and three cubital cellules, of which the second and third receive each a recurrent nervure. No mention is made of the presence of spines on the tibiæ, or if the lanceolate cellule is absent.

Subfam. *PERREYINA*.

Antennæ 10–14-jointed, the joints moniliform or thickened towards the apex; in male sometimes flabellate. Wings with one radial cellule, appendiculated, and four cubital cellules. Lanceolate cellule petiolate. Hind wings with an appendicular cellule. One discoidal cellule and no accessory nervure. Palpi short, thick. Maxillary palpi 2–4-jointed, labial 1–3-jointed.

This group has usually been regarded as a section of the Lophyrina; but it differs in so many points not only from that group, but from all others, that I am justified, I think, in making a distinct section of it, and have given above the distinctive characters of the subfamily.

I have not sufficient material at hand to enable me to form a definite idea as to the genera; but, provisionally at least, I would arrange them as follows:—

A. Antennæ 10–11-jointed. Labial palpi 1-jointed, maxillary 3-jointed . . *Decameria*.
B. Antennæ more than 11-jointed.
1. The antennæ more than 13-jointed, flabellate in the male. Maxillary palpi 4-jointed, labial 3-jointed. Second recurrent cellule usually receiving both recurrent nervures; appendicular cellule in hinder wings very small . . . . . *Lophyroides*.
2. The antennæ 13-jointed. Maxillary palpi 2-jointed, labial 1-jointed. Second recurrent nervure usually receiving only one recurrent nervure; appendicular cellule in hind wings large . . . . . *Perreyia*.

LOPHYROIDES.

Lophyroides, Cameron, Ent. M. Mag. xix. p. 132.
Brachytoma, Hartig, Blattw. und Holzwespen, p. 88; Westwood, Thesaurus Entomologicus Oxoniensis, p. 109 (in part.) (1874).

The palpi in this genus are short, thick, and sparsely covered with longish bristle-like hairs, the last being also the case with the maxilla; the labial palpi are 3-jointed, the first joint is longer than the second and a very little shorter than the third, which is brought to a blunt point in the middle at the apex. The maxillary palpi are 4-jointed; the first is thicker than the second, and projects on the lower side; the third is a little longer than either the first or second; the fourth is a little longer than the two preceding together, besides being thicker than them. The mandibles are stout, rather blunt at the apex, and have no subapical tooth. The second cubital cellule usually receives both recurrent nervures; but the second may be interstitial or nearly so. The position of the second transverse cubital nervure is subject to irregularity; and this will lead to a corresponding change in the relative position of the second recurrent nervure; the second tansverse cubital nervure is often absent. The appendicular cellule in both wings is small. The calcaria are simple, broad, and do not much exceed one third of the length of the metatarsus, which is a little shorter than the three following joints; the last is longer than the two preceding; the patellæ are obsolete; the claws long, curved, simple.

1. **Lophyroides tropicus.** (Tab. III. figg. 10, ♂; 10 *a*, maxilla; 10 *b*, labium; 10 *c*, mandible; 10 *d*, antennæ of ♀.)

Lophyrus tropicus, Norton, Trans. Amer. Ent. Soc. ii. p. 322; Catal. p. 176 (♂)[1].

Hab. Mexico (*de Saussure*[1]); Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

I believe the specimens from Chiriqui are correctly identified with Norton's species. The third cubital cellule is scarcely half the length of the second, and the third transverse cubital nervure is often absent. The sutures on the vertex are very deep, as is also the transverse furrow behind the ocelli and the longitudinal one in the centre of vertex. A wide furrow runs from the ocelli to the antennæ, becoming wider towards the apex. In the male, however, the sutures on the vertex are less clearly marked, and the central longitudinal one on the vertex is absent. The wings vary in the intensity of the colour, and as a whole the males have them lighter in tint.

2. **Lophyroides anomalus.**

Perreyia (?) *anomala*, Kirby, List of Hymen. i. p. 90. n. 3, t. 6. f. 14[1].
Perreyia compta, Kirby (non Norton), *l. c.* p. 90 (note), t. 6. f. 13 (♂).

Hab. Mexico [1].

This species seems scarcely to differ from *L. tropicus*.

3. **Lophyroides ruficollis.** (Tab. III. figg. 11, ♂; 11 *a*, antennæ of ♂.)

Niger, pronoto, mesonoto, mesopleuris tegulisque rufis; femoribus tibiisque anterioribus sordide testaceis; alis nigris, cellula cubitali secunda fere longiore quam tertia; antennis 15-articulatis. ♂.
Long. 9 millim.

Hab. PANAMA, Volcan de Chiriqui (*Champion*).

The sutures on the vertex are wide, clearly limiting the vertex, which is raised between them, and has a broad transverse furrow behind the ocelli, and a shallower longitudinal one behind the transverse furrow in the middle; a furrow, wide but not deep, runs from the lower ocellus to near the base of the antennæ; the front is raised, and curves down between the antennæ, ending in a (comparatively) sharp point close to the middle of the antennæ, from which it tapers to near the base of the clypeus. The apex of the clypeus is truncated; the labrum is piceous. The wings and nervures are deep black; the second cubital cellule is a little longer than the first, and still longer than the third, which is almost square; the second recurrent nervure is received in front of the third cubital. The joints of the antennæ are fuscous. The scutellum is black; only the upper part of the pleuræ is red; the anterior tibiæ and femora are more or less fuscous behind.

4. **Lophyroides godmani.**

Niger, pronoto, mesonoto, cum scutello, mesopleuris tegulisque rufis; alis fuscis, cellula cubitali tertia longiore quam secunda; antennis 14-articulatis. ♀.
Long. 9 millim.

Hab. GUATEMALA, Las Mercedes 3000 feet (*Champion*).

The frontal sutures are flat and indistinct; the space behind the ocelli and between the sutures is not raised or clearly defined, nor is there any transverse suture behind the ocelli; the central antennal fovea is large, much longer than broad; the front between the antennæ and at the end of the fovea projects. The antennæ are not much longer than the head and thorax, pilose; the third joint much longer than the fourth; the last conical, and much narrower than the thirteenth. The second cubital cellule is distinctly longer than the first, and shorter than the third by about one third; the fourth is a little shorter than the second and third together. The wings are darker at the base; the upper half only of the pleuræ is red.

Easily known from *L. ruficollis* by the red scutellum, much longer third cubital cellule, interstitial second recurrent nervure, and by the vertex not being separated from the rest of the head by deep furrows.

5. **Lophyroides cordoviensis.**

Lophyrus cordoviensis, Norton, Trans. Amer. Ent. Soc. ii. p. 323; Catal. p. 177 (♂)[1].

Hab. MEXICO [1].

PERREYIA.

Perreyia, Brullé, Hymén. iv. p. 661.

This genus differs from *Lophyroides* in the antennæ being only 13-jointed in both sexes and simple in the males, in the appendicular cellules in both wings (but more especially in the hinder pair) being much longer, in the second cellule receiving only one recurrent nervure, and by the palpi having fewer joints, the labial palpus being composed of only one large joint, as in *Decameria*, and the maxillary of only two joints—a long basal and a shorter, thicker, and more rounded apical one.

1. **Perreyia capitula.** (Tab. III. fig. 7.)

Perreyia capitulum, Norton, Trans. Amer. Ent. Soc. i. p. 223; Catal. p. 223; ib. p. 85 (♂ & ♀)[1].

Hab. Mexico [1].

The antennæ in this species are clearly 13-jointed, not 12 as stated by Norton. The sutures on the vertex are moderately deep, and there is a small transverse one behind the ocelli. A short, broad, and deep furrow runs from the ocelli down to the antennal fovea, and it is bisected by a somewhat narrower transverse furrow before its termination. This central furrow is much wider, almost oblong, at the top in the male. The recurrent nervures n the male are received nearer the transverse cubital nervures than in the female. What Norton calls "a black spot on the apex of the abdomen" is the genital armature, which is black in it and in *P. compta.*

2. **Perreyia compta.**

Perreyia compta, Norton, Trans. Amer. Ent. Soc. i. p. 323; Catal. p. 85(♂)[1]; Kirby, List of Hymen. i. t. 6. f. 15[1].

Hab. Mexico [1].

The sutures on the vertex are distinct; the frontal area is depressed, leading into a short and wide furrow, which reaches close to the antennæ. The antennæ are long, thick, become thickened towards the apex, and are covered with a close pile; the third joint double the length of the fourth; the joints produced a little at the apex; the third and fourth thinner than the succeeding, the apex not attenuated; the last two about equal in length. Wings deep violaceous throughout; first cubital cellule a very little shorter than the second, which is not half the length of the third; second recurrent nervure interstitial.

The neuration of the wings is very irregular, and specimens with five cubital cellules are not uncommon. It is a larger insect than *P. championi*; the antennæ are longer, thicker, and distinctly pilose, and with the third joint distinctly double the length of the fourth, while the joints increase in thickness towards the apex, the reverse being the case with *P. championi.* It also differs from the latter in having the genital armature black.

Kirby (List of Hymen. i. p. 90) doubts if Norton had described a male, as he says he did; but Norton is quite correct in this, and, judging by Kirby's figure of the so-called female, I should say it is a male. What Kirby (*l. c.*) describes and figures (t. 6. fig. 13) as the male of *P. compta* is a *Lophyroides* allied to *L. ruficollis*.

3. **Perreyia championi.** (Tab. IV. fig. 6, maxillary palpus.)

Nigra, ore testaceo, abdomine flavo-rufo; alis fusco-violaceis, cellula cubitali tertia paullo breviore quam secunda.

♂. Long. 7–8 millim.

Hab. GUATEMALA, Purula (*Champion*).

The antennæ are stout, very slightly tapering towards the apex; the joints slightly produced at the apex, the third one half longer than the fourth; at the sides the joints are piceous. The vertex is raised, bounded on the sides by the vertical furrows, and immediately above the antennæ by a transverse furrow; a short but wide furrow issues from near the lower ocellus. The space between the antennæ, labrum, clypeus, and mandibles is testaceous. The second cubital cellule is longer than the first and third; the third itself is longer than the first; the second recurrent nervure is received a little behind the second transverse cubital and in the third cubital cellule.

DECAMERIA.

Decameria, St.-Fargeau, Enc. Méth. x. p. 371 (1825).
Dictynna, Brullé, Hymén. iv. p. 662; Norton, non Westwood.
Camptobrium, Spinola, Ann. Soc. Ent. Fr. ix. p. 134.
Acherdocerus, Kirby, List of Hymen. i. p. 92.

I am not quite sure as to *Camptobrium* being identical with *Decameria* or congeneric with any of the insects I have described here. They agree closely with Spinola's description and figure, save that he says the palpi are long, filiform, and 4–6-jointed, which is certainly not the case with any of the insects of this group known to me. My impression is that Spinola has made a mistake in his description of the palpi, but that can only be verified by an examination of his type specimen. Under these circumstances I have not adopted Spinola's name. It is necessary to explain that the typical *Decameria* has only ten joints in the antennæ; but I have not, on this account, separated it from the species with eleven joints (that being the number with *Camptobrium*), because I do not regard, in this case, the number of joints of generic value, as the difference in the number of joints is not accompanied by other differences.

1. **Decameria nigriceps.**

Camptobrium (?) *nigriceps,* Kirby, List of Hymen. i. p. 92, t. 6. f. 18[1].

Hab. MEXICO, Orizaba[1].

2. **Decameria rufiventris.**

Nigra, subviolacea, abdomine flavo-rufo; alis fuliginosis, cellula cubitali tertia duplo longiore quam secunda.
♂ abdomine supra nigro; alis cellula cubitali tertia haud duplo longiore quam secunda.
Long. 10 millim.

Hab. Costa Rica, Irazu, 6000 to 7000 feet (*Rogers*).

The head is nearly on a line with the eyes behind. The sutures on the vertex are deep and broad, and go down to near the antennæ; there is a distinct transverse furrow behind the ocelli and a longitudinal one in the centre of the vertex; the frontal area is deeply sunk, the depression extending from the ocelli to the antennæ. The antennæ are not much longer than the head and thorax, and shorter than the abdomen, slightly pilose; the third joint more than double the length of the fourth. The second cubital cellule is a little longer than the first, and has a large horny point beyond the middle, and is curved down where the recurrent nervure is received at the apical third. The third cellule is more than double the length of the second; the recurrent nervure is received close to the second transverse cubital nervure, which is not received in an acute angle; the basal nervure is interstitial, is straight, and not parallel with the first recurrent, which curves towards the base of the wing much more than the second recurrent; the transverse median nervure is short, and is received in an acute angle formed by the costal nervure; the median cellule is five-angled. The stigma is long; the appendicular cellule large; costa thickened. The spines are short, thick, broad; the patellæ are present, although small; the spurs simple. The anterior tarsi are very much longer than the tibiæ; the posterior scarcely so lengthened.

The male has the abdomen entirely black above; the sutures on the vertex are scarcely so deep, but the transverse and longitudinal furrows are present; the third cubital cellule is shorter, not being double the length of the second, and the third joint of the antennæ is shorter in proportion to the fourth.

3. **Decameria nigriventris.** (Tab. III. figg. 9, ♀; 9 *a*, antenna.)

Nigra; capite, prothorace, mesothorace tegulisque rufo-testaceis; alis fuliginosis, cellula cubitali tertia duplo longiore quam secunda.
Long. 8–9 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

The antennæ are sparsely pilose; the third joint scarcely double the length of fourth, the last longer than preceding, and, if any thing, longer than the fourth. The third cubital cellule is double the length of second. The anterior coxæ and knees are pale red.

This species is smaller than *D. rufiventris*. The head is narrower, and retreats considerably behind the eyes; the frontal area is not altogether hollowed, there being only a furrow proceeding from the ocellus; the thrid joint of the antennæ is shorter; the second cubital cellule is narrower, the third longer and consequently the fourth is shorter.

4. **Decameria varipes.**

Nigra; pronoto, mesonoto, lateralibus tegulis, ore, facie orbitaque exteriore læte rufis; coxis trochanteribusque albidis; alis fumatis, cellula cubitali tertia fere longiore quam secunda; antennis 11-articulatis.
Long. 5 millim.

Hab. Guatemala, Cerro Zunil 4000 to 5000 feet (*Champion*).

The third joint of the antennæ (which are longer than the abdomen) is nearly double the length of the fourth; the second cubital cellule is a very little shorter than the third; the second recurrent nervure is received a little beyond the second transverse cubital. The head is small, narrowed behind; the eyes project in front, so that the face retreats considerably. The greater part of the middle lobe of the mesonotum, the sides of metanotum, and the pleuræ immediately below the wings are red; the basal half of the anterior femora is white; the abdomen is obscure fuscous across the segments above.

5. **Decameria cordoviensis.**

Dictynna cordoviensis, Norton, Trans. Amer. Ent. Soc. iv. p. 81[1]; Cresson, loc. cit. viii. p. 38.

Hab. Mexico, Cordova [1].

6. **Decameria polita.**

Dictynna polita, Norton, Trans. Amer. Ent. Soc. iv. p. 81[1]; Cresson, loc. cit. viii. p. 38.

Hab. Mexico [1], Cordova.

7. **Decameria fumipennis.**

Acherdocerus fumipennis, Kirby, List of Hymen. i. p. 92. t. 7. f. 1[1].

Hab. Mexico [1].

Kirby describes the antennæ as 9-jointed; but both in the figure and in the enlarged drawing of the antennæ they are represented as distinctly 10-jointed; and Mr. Kirby tells me that on a re-examination of his type he finds that this is the real number.

8. **Decameria facialis.**

Nigra; thorace, facie, coxis trochanteribusque rufis; antennis 10-articulatis; alis fumatis.
Long. 6–7 millim.

Hab. Guatemala, Tamahu (*Champion*).

The sutures on vertex are deep, and there is a transverse furrow bounding the vertex above the antennæ, but there is no longitudinal frontal furrow; the vertex is depressed in the centre behind the ocelli. The antennæ are thick; the third joint is scarcely one quarter longer than the fourth; the last is longer than the ninth. The second transverse cubital nervure is absent.

The joints of the antennæ are thicker than in *D. nigriventris*, and they are not so distinctly attenuated at the base, which is but slightly thinner than the apex; the third joint is shorter in comparison with the following, and the fourth cubital cellule is shorter.

Subfam. *LYDINA*.

PAMPHILIUS.

Pamphilius, Latreille, Hist. Nat. Crust. Ins. iii. p. 303 (1802).
Lyda, Fabr., Syst. Piez. p. 43 (1804).

This genus is characteristic of the temperate regions, and is almost if not quite absent from the tropics. Fifty-nine species have been described from Europe, Japan, and North China, and fifty-four are known from America north of Mexico. Only two species are known from Central America and none from the Ethiopian Region.

1. **Pamphilius variegatus.**

Lyda variegata, Norton, Trans. Amer. Ent. Soc. ii. p. 335; Catal. p. 189, ♂ [1].

Hab. Mexico [1].

2. **Pamphilius creditus.**

Lyda credita, Norton, Trans. Amer. Ent. Soc. ii. p. 334; Catal. p. 188, ♂ [1].

Hab. Mexico [1].

Fam. CEPHIDÆ.

CEPHUS.

Cephus, Latreille, Hist. Nat. Crust. Ins. iii. p. 303 (1802).

This genus is numerously represented in the Palæarctic and Nearctic Regions, but is absent apparently elsewhere, except from Mexico and Japan.

1. **Cephus (?) mexicanus.**

Cephus mexicanus, Guérin, Icon. Reg. Anim. iii. p. 403; Norton, Trans. Amer. Ent. Soc. ii. p. 344; Catal. p. 198, ♀ [1].

Hab. Mexico [1].

The antennæ of *C. mexicanus* are described as 7-jointed, which may be an error for 17-jointed.

Fam. SIRICIDÆ.

Subfam. *SIRICINA*.

SIREX.

Sirex, Linnæus, Faun. Suec. p. 396 (1761); Klug, Mon. Sir. Germ. p. 19 (1803).
Urocerus, Geoffroy, Ins. Par. ii. p. 264 (1762).

This well-known genus is numerously represented in the Palæarctic and Nearctic Regions, and species are also known from China, India, and Australia; but no species have hitherto been recorded from South America, or from the Ethiopian Region.

1. **Sirex flavicornis.**

Sirex flavicornis, Fabr. Spec. Ins. i. p. 418. 4 (1781).

Hab. North America; Mexico.

There is a specimen of this species in the Hope Museum, Oxford, with the locality "Mexico." It is common in North America.

2. **Sirex fulvus.**

Urocerus fulvus, Cresson, Trans. Amer. Ent. Soc. viii. p. 35 (1880)[1]; Kirby, List of Hymen. i. p. 379[2].

Hab. North America[1], Western States.—Mexico[2].

Subfam. *XIPHYDRINA*.

DERECYRTA.

Derecyrta, Smith, Ann. Nat. Hist. (ser. 3) vi. p. 255 (1860); Westwood, Thes. Ent. Oxon. p. 121 (1874).

This genus is exclusively Neotropical, and only four species have hitherto been described. It differs from *Xiphydria* merely in having only one radial cellule, and in having the ovipositor somewhat shorter; but this last point can scarcely be regarded as of generic value. The maxilla is constructed as in the Tenthredinidæ; the palpi are 5-jointed; joints one and three are the shortest, and nearly equal in length; joint two is the longest, and the fifth is a little longer than the fourth. The labium is apparently entire; the palpi have three joints. The basal is longer than the second, and both are much thinner than the third, which is more than double their thickness, and as long as the first.

1. **Derecyrta rugifrons.** (Tab. III. fig. 13.)

Nigra, alis fere hyalinis, apice lenissime fumatis; facie mesonotoque punctulatis; alis cellula cubitali secunda longiore quam tertia.

Long. 17–18 millim.

Hab. Costa Rica, Irazu, 6000 to 7000 feet (*Rogers*).

The head behind the ocelli is smooth and shining, below semiopaque, snagreened; front projecting, depressed in the centre. Mesonotum rugose, the lateral lobes in front finely punctured, half shining. Scutellum finely punctured; at its apex it rises into a sharp but not high peak, which is more perpendicular behind than before. The abdomen is shining, very finely punctured; the basal segment is smooth, impunctate, but with the edges all round more coarsely punctured than any other part. The transverse basal nervure is received a little before the middle of the first cubital cellule and slightly curved; the first recurrent is also curved, but the opposite way, and is received not far from the first transverse cubital; the second recurrent nervure is received quite close to the second transverse cubital; the third cubital cellule is wider than second and longer than fourth. The antennæ are much shorter than abdomen, are rather stout, and 23-jointed.

Allied to *D. lugubris*, Westw., from Brazil, but differing in neuration and punctuation.

Fam. ORYSSIDÆ.

ORYSSUS.

Oryssus, Latreille, Précis, p. 111 (1796); Fabr. Ent. Syst. Suppl. p. 218 (1798).

Fifteen species of this genus are known. Species are found in Europe, Abyssinia, Natal, the Gold Coast, and Aru; four have been recorded from North America, three from Brazil, and one from Chili.

1. **Oryssus mexicanus.**

Oryssus mexicanus, Cresson, Proc. Amer. Ent. Soc. 1879, x.; Trans. viii. p. 48, ♀ [1].

Hab. Mexico [1].

2. **Oryssus nigricans.** (Tab. III. figg. 14; 14 *a*, spur on anterior leg; 14 *b*, antenna.)

Niger, breviter pubescens, punctulatus, trochanteribus tarsisque anticis testaceis; alis fumatis, albo maculatis. Long. 5 millim.

Hab. Guatemala, Pantaleon 1700 feet (*Champion*).

The third joint of the antennæ is double the length of the fourth; the last is as long and much thicker than the two preceding. The head and thorax are coarsely punctured; the punctures on scutellum are wider apart; the puncturing on the abdomen is much finer and closer; the segmental divisions are shining, impunctate. On the inner side of the eyes are three large (comparatively) tubercles, and down the lower part of the head in front is an ill-defined furrow; the base of stigma is white, and from this white part runs a pear-shaped fascia to the bottom of the wing, this fascia

being widest at the top; the lower half of the wing to the middle fascia and the apex are milk-white. The posterior wings are almost hyaline, the upperside at apex only being smoky.

PETIOLIVENTRIA.

DITROCHA (Terebrantia).

Fam. CYNIPIDÆ.

Subfam. *GALLICOLINÆ.*

CYNIPS *sensu lat.*

The three species of gall-making Cynipidæ which inhabit Central America are only known from their galls, so that it is impossible to say to what genus the makers of these belong; and although Dr. Karsh describes the upheaver of the gall he records from Mexico, I cannot, from his description, refer the species described by him with precision to any of the modern genera.

1. Cynips setifer.

Diplolepis setifer, Karsch, Zeitschr. f. d. ges. Naturw. liii. p. 291, t. vi. f. 2–2*a*–*d*[1].

Hab. Mexico[1].

2. Cynips championi.

The gall is broader than long, having a breadth of about $2\frac{1}{2}$ inches and a length of 2 inches, the surface irregularly indented, of a leathery texture, and so hard that it can be cut only with difficulty; the inside is also hard and is of a close compact spongy nature. Its colour closely resembles that of the twigs. Intersected through it at irregular intervals are oval cells about $1\frac{1}{2}$ millim. in length. The outer margin of the cells is hard, woody, and white. Besides the numerous exit-holes of the gall-flies there was a larger one which, at a short distance from the outer skin, bifurcated into two tunnels; these were filled with "frass," and in one of them was found a silken case, white and smooth internally, but covered with "frass" on the outside, clearly the case of some Microlepidopteron. The gall is situated at the end of a twig about 3 millim. in diameter. It is said by Mr. Champion to be common in Chiriqui on a species of oak. The maker is unknown to me.

3. Cynips imitator. (Tab. IV. fig. 8, gall.)

Hab. Guatemala, San Gerónimo (*Champion*).

The largest galls have a diameter of 26 millim. In form they are more or less roundish, but, if any thing, longer than broad; they are situated on a twig or small

branch, which they surround about equally on all sides. The galls proper originate from the twig; they are woody in texture, much longer than broad, being more than 4 millim. long and only about 1 millim. broad; they stand out from either side of the twig; each is covered by a mass of white, soft, woolly hair, which may be 10 millim. long. As the galls are closely pressed together they form, from the length and thickness of the woolly covering, a large ball-like mass of white wool, which must be a conspicuous object on the twig, and from being delicately tinted with pink must be very pretty. All the specimens I have were pulled when very young, and hence it is impossible to make out any thing of the structure of the inner galls.

The gall is very like that of *Cynips seminator*, Fitch, and may, indeed, be made by that species.

4. **Cynips guatemalensis.** (Tab. IV. figg. 7, 7*a*, gall.)

Hab. GUATEMALA, San Gerónimo (*Champion*).

The gall is found on the lower side of the leaves of an Ilex oak. It is placed on the mid-rib, usually towards the centre of leaf; it is flat on the lower side, but dome-shaped above, and is wider than high. The centre is hard and woody, and the fibres radiate from the centre towards the edge; the larval chambers are situated along the edge, there being none in the centre. Outside the woody central gall is a covering of woolly hairs, white internally, but reddish brown on the outer side. An average-sized gall measures for the gall proper 7 lines in breadth and 5 lines in height, while the woolly outer covering is nearly 3 lines. The galls are usually in pairs; but single specimens are also found, and in one instance there were four specimens on a single leaf; these were much smaller than usual.

Dr. Karsch * describes three galls on oak (*Quercus benthami*, Dec.) from Mexico which are in all probability formed by species of Cynipidæ, but no names are given to them, namely:—

1. A round gall on the leaf-stalk close to leaf, dark red externally and velvet-like in texture. The thin-walled shell encloses an inner gall in the centre, and from this inner gall fibres radiate to the circumference, thus keeping it in position. It has a diameter of 26 cm. (*l. c.* t. vii. f. 13).

2. A small, smooth, shining, yellowish, roundish gall of 14 millim. diameter on the leaf.

3. A gall like the first, but larger, being 4 cm. in diameter and outwardly smooth, yellowish and warty in texture (*l. c.* t. vii. f. 14 *a–c*).

Subfam. *INQUILINÆ.*

This group consists of the species which lay their eggs in the galls raised by other Cynipidæ, and live in them at the expense of the legitimate owner. They are vegetable

* *l. c.* p. 303.

feeders and often distort the galls which they inhabit. From their habits they have been called "Cuckoo-flies."

SYNERGUS.

Synergus, Hartig, Germ. Zeits. ii. 1840, p. 186; Foerster, Verh. zool.-bot. Wien, 1869, p. 332.

1. **Synergus filicornis.** (Tab. IV. fig. 10 ♀; 10 *a*, antenna.)

Rufo-testaceus; antennis (basi excepto), vertice, pleuris, metathorace abdominisque dorso nigris; pedibus flavo-albidis, tarsis posticis nigris; alis hyalinis, nervis testaceis.
Long. fere 3 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

The vertex is shagreened, shining; the face when looked at with a strong glass has a matted appearance as if it were covered with fine hair; the pronotum and mesonotum closely punctured longitudinally; pleuræ transversely striated, shining in the centre, more opaque at the sides; the abdomen is smooth and shining; the apex finely shagreened; ovipositor black.

2. **Synergus dorsalis.**

Rufo-testaceus; macula mesonoti, metathorace, pectore abdominisque dorso nigris; pedibus flavo-albidis; alis hyalinis, nervis testaceis.
Long. 4 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

The head and thorax are finely rugose; the pleuræ striated; abdomen finely shagreened; ovipositor black; the third joint of the antennæ is a little longer than the fourth; the fourth, fifth, and sixth are subequal; the rest are wanting. In most of the specimens the space enclosing the ocelli and the part behind it, a broad stripe on mesonotum, and the basal half of scutellum are black.

Differs from *S. filicornis* in having black on the mesonotum, the thorax more strongly punctured, abdomen shorter and not so much compressed, it being not much longer than thorax; wings shorter, and the hind tarsi are not black. In the male the thorax and abdomen are entirely black, as well as the greater portion of the sides of the latter.

All my specimens were cut out of the galls of *Cynips guatemalensis*.

Subfam. *PARASITICÆ*.

EUCOILIDÆ.

The species of this group are easily recognized by the cup-shaped hollow on the top of the scutellum.

The European species have been distributed among a large number of genera by

Foerster, many of them being founded on very slight characters. The species are very numerous in the northern parts of Europe (where alone they have been properly studied); but few have been recorded from America, and none hitherto from South or Central America.

COTHONASPIS.

Cothonaspis, Hartig, Germ. Zeits. Ent. i. p. 201; Foerster, Verh. pr. Rheinl. 1869, p. 347.

No species of this genus have been previously recorded from America.

1. Cothonaspis allotriiformis.

Rufa, pedibus flavis, vertice læta, mesonoto antennarumque apice nigro-piceis; antennis corporis fere longitudine, clava 5-articulata, articulo tertio longiore quam quartus, scutelli fovea sat magna, ovata; alis hyalinis, longe ciliatis, cellula radiali elongata.

Long. 1–2 millim.

Hab. Mexico, Cordova (*Sallé*).

The antennæ are nearly as long as the body; the third joint is longer than the fourth; the five apical form a club; they are covered sparsely with microscopic hairs. The cup on the scutellum is not so hollow as in the typical species of the genus; the wings are covered at the apex with long hair; the radial cellule is closed.

Fam. FIGITIDÆ.

The Figitidæ of the older authors have been split up into three groups—the Anacharina, Onychiina, and Figitina. No species of the first have been recorded from our district, but one of the genera here described is intermediate between it and the second. If these divisions are to be accepted, *Leiopteron* would require one for itself; but we know so little about the American species that any attempt at their classification must be regarded with distrust at present.

BALNA.

Antennæ 13-jointed, filiform; the joints of the flagellum longer than broad; the third joint longer than the fourth; the rest becoming gradually shorter, but scarcely thicker towards the apex. Cheeks and temples margined. Prothorax with the margin distinctly ridged. Mesonotum with two wide and deep sutures, the centre raised into a blunt ridge a little before the middle. A single fovea in front of scutellum, which is produced at the apex into a blunt, short, thick spine. Thorax smooth, shining, impunctate. Radial cellule longer than wide, closed before and behind and without a bounding nervure along the costa. Cubital nervure obsolete.

This genus comes nearest to *Aspicera*, Dbm., but differs in having the thorax smooth, shining, the scutellum not produced into a long, sharp spine, and with only a single fovea at the base, while the radial cellule is completely closed before and behind.

1. **Balna nigriceps.**

Rufa; capite, scapo antennarum abdomineque nigris, alis hyalinis.
Long. 3–4 millim.

Hab. GUATEMALA, Volcan de Atilan 2500 to 3000 feet (*Champion*).

The antennæ are as long as the body, filiform, becoming very slightly thicker towards the apex; third joint a very little longer than the fourth, the rest to the penultimate becoming gradually shorter, the last one half longer than the twelfth; the first double the length of the second, which is broader than long. Vertex raised, its centre hollow. Head broad behind the eyes, where there is a suture. Prothorax ridged, the ridge scarcely sloping towards the coxæ, with a very slight slope in front, and ending in the centre in a small blunt tubercle. Lateral suture on mesonotum deep, ending at the prothoracic ridge, middle suture short. In the middle of the mesonotum is a blunt, comparatively large, tubercle. A ridge separates the scutellum from mesonotum; it has one large hollow at the base, and has a sharp blunt ridge in the centre; it is hollow on either side of this and ends in a short, blunt spine, but the ridge is depressed before ending in the spine. The pleuræ are smooth, impunctate. The metanotum is thickly covered with white hair.

NERALSIA.

Antennæ 13-jointed, thick, increasing in thickness towards the apex; first joint double the length of second, which is ovate; third longer than fourth; the sixth to the penultimate thicker than preceding, a little longer than broad, rounded at base and apex, striated; last nearly double the length of twelfth. Eyes bare, margined. Ocelli in a triangle. Pronotum margined, very nearly perpendicular in front. Mesonotum smooth, shining, with two sutures; scutellum with two large foveæ at the base, prolonged into a moderately long spine at the apex. Petiole striated. Radial cellule not much longer than broad, completely closed all round. Cubital nervure incomplete, apex of wing ciliated. Mandibles stout, not much longer than broad, with three short blunt teeth. Maxillary palpi 4-jointed.

This genus is intermediate between the Onychiina and the Figitina. It agrees with the former group in the structure of the thorax and abdomen, with the latter in the form of the antennæ. The almost moniliform joints of the latter distinguish it from any of the known genera of Anacharina.

1. **Neralsia rufipes.** (Tab. IV. figg. 9 ♀; 9 *a*, antenna; *b*, scutellum; *c*, ovipositor.)

Nigra, abdominis basi pedibusque rufis; alis hyalinis, medio fusco-maculatis.
Long. 3–4.

Hab. GUATEMALA, Pantaleon 1700 feet (*Champion*).

The antennæ are as long as the abdomen and half the thorax, slightly pilose, the hairs long and scattered; basal joint three times as long as the second, thickened

towards the apex; the second is not much longer than broad, globular; third one half longer than fourth; the third, fourth, and fifth somewhat cylindrical; the rest to the penultimate thicker and shorter in proportion to the breadth, and becoming gradually shorter; last conical at apex, nearly double the length of the twelfth. The head has a few scattered hairs. Vertex thick, raised, rugose-punctured; a furrow goes down the side outside the ocelli; the antennæ originate from tubercles. Prothorax large, smooth, shining; a distinct ridge goes down from the top, and divides the front portion (which slopes down from the ridge) from the larger posterior part, and a few rough ridges run from it laterally on the upperside, from the mesonotum. The lateral sutures on the mesonotum are wide and deep, but become obsolete towards the prothorax; there is a short central one which is one half longer than wide; its base is sharply pointed; the apex truncated. Close to the base of scutellum is a distinct, transverse ridge from which the mesothoracic sutures originate; on the other sides of this ridge are the two large, oval, deep scutellar foveæ. The scutellum rises gradually from the foveæ with a slope; the centre is hollow, the hollow being longer than broad; on each side of this central depression is a smaller and much narrower hollow; the scutellum ends in a short, stout spine, which projects backwards. The metanotum has a large hollow field in the centre; it is longer than broad in the centre, and is surrounded by a straight channel behind and by a blunt ridge at the sides. Abdomen shorter than the thorax; pedicel short, raised, channelled, the edge margined; second segment scarcely half the length of the third, produced into a tongue-like process above; the third segment is a little longer than the fourth and following segments together. Radial cellule wider than long. Posterior tibiæ and metatarsi thick; spurs nearly one quarter of the length of the latter.

LEIOPTERON.

Leiopteron, Perty, Delect. Am. Art. (1830).

This genus is exclusively Neotropical. Eight species have been described from Brazil.

1. **Leiopteron westwoodii.** (Tab. IV. fig. 12, ♀; 12 *a*, antenna.)

Rufum; capite thoraceque sat longe albido-villosis; antennis (apice excepto), abdomine pedibusque posticis nigris, tarsis posticis rufo-testaceis; alis hyalinis, macula magna ad apicem fumata.

Long. 6 millim.

Hab. Panama, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

The antennæ are distinctly clavate; the third joint is shorter than the fourth. The head and thorax coarsely rugose; mesopleura smooth, almost impunctate, the upper part depressed and separated from the lower by a curved groove; this upper part is finely punctured; sternum coarsely punctured. The anterior coxæ, trochanters, and the

pectus are more or less black; the metathorax is also black behind. Abdomen smooth and shining; the apex covered with long white hairs; the fascia in fore wings commences close to the end of the radial cellule, and is a little longer than it.

Fam. CHALCIDIDÆ.

This family contains an immense horde of minute parasitic species, the study of which is attended with great difficulties. The European forms have been divided into a large number of genera, the characters of which do not appear to apply to exotic species, and many of which, moreover, have been grounded on single species—as often as not, known only from one sex. The definitions furthermore given by Foerster and Thomson for many of the higher groups are, in the majority of cases, equally inapplicable to exotic forms. These, then, would require to have new divisions created for them, or the older ones would need have their limits enlarged and revised. My material, however, is so limited that I have not attempted to do this, and I have avoided as much as possible the creation of new genera.

Subfam. *LEUCOSPIDINÆ.*

This group is a very distinct one, being readily distinguished by having the wings folded as in the Vespidæ, and by the ovipositor being turned over the back of the abdomen.

LEUCOSPIS.

Leucospis, Fabricius, Syst. Ent. ii. p. 245; Westwood, Germ. Zeits. Ent. i. p. 235.

This well-known genus is found in the Palæarctic Region, North and South Africa, the East Indies, North America, Brazil and Chili, New Caledonia, &c.

The species are parasites in the nests of bees and wasps.

1. **Leucospis bulbiventris.**

Leucospis bulbiventris, Cresson, Tr. Am. Ent. Soc. iv. p. 29[1].

Hab. Mexico[1].

2. **Leucospis apicalis.**

Leucospis apicalis, Cresson, Tr. Am. Ent. Soc. iv. p. 30[1].

Hab. Mexico[1].

3. **Leucospis mexicana.** (Tab. IV. figg. 11, ♀; 11 *a*, maxilla; 11 *b*, labium; 11 *c*, mandible.)

Leucospis mexicana, Walker, Journ. of Ent. i. p. 20, ♀[1]; Cresson, Tr. Am. Ent. Soc. iv. p. 30.

Hab. Mexico[1]; Nicaragua, Chontales (*Belt*); Panama (*Boucard*).

I am not quite sure that the specimens from Nicaragua and Panama are to be referred to *L. mexicana*, for they differ from the descriptions of the latter in having the abdomen not "strongly metallic green at the apex," and the anterior femora are lined beneath with yellow; otherwise they agree closely enough with Walker's and Cresson's descriptions.

4. **Leucospis sumichrasti.**

Leucospis sumichrasti, Cresson, Trans. Am. Ent. Soc. iv. p. 30[1].

Hab. MEXICO [1].

5. **Leucospis klugii.**

Leucospis klugii, Westwood, Germ. Zeits. Ent. i. p. 249, pl. 3. f. 1, ♂[1]; Cresson, Tr. Am. Ent. Soc. iv. p. 35[1].

Hab. MEXICO [1].

6. **Leucospis azteca.**

Leucospis azteca, Cresson, Trans. Am. Ent. Soc. iv. p. 33[1].

Hab. MEXICO [1].

7. **Leucospis dubiosa.**

Leucospis dubiosa, Cresson, Trans. Am. Ent. Soc. iv. p. 34[1].

Hab. MEXICO [1].

Cresson thinks this may prove to be a variety of *L. azteca*, from which it differs but little.

8. **Leucospis tolteca.**

Leucospis tolteca, Cresson, Trans. Am. Ent. Soc. iv. p. 34[1].

Hab. MEXICO [1].

Subfam. *CHALCIDINÆ.*

According to European writers the species pertaining to this subfamily are to be known by having the posterior femora enlarged and serrated or toothed on the underside, and the body not metallic. These characters are sufficient for European species, but scarcely so for exotic; for many species allied to *Cleonymus* and *Torymus* have similarly constructed femora. The species of *Smicra* and *Chalcis* (which are the typical genera of the group) are commonest of all the exotic Chalcids.

SMICRA.

Smicra, Spinola, Ann. Mus. xvii. p. 147.
Spilochalcis, Thoms. Hymen. Scand. iv. p. 13.
Conura, Sichel, Ann. Soc. Ent. Fr. (4) v. p. 348, 1865 (ex parte).
Chalcis, Westwood, Intr. to Class. Ins. ii. Appendix, p. 65.

This is one of the best-known and most widely distributed of the genera of Chalcididæ. Species have been discovered in almost all parts of the world; but they appear to be especially abundant in Central and South America. The generic characters appear to lie in the antennæ being inserted in the middle of the face, and in the abdomen having a more or less elongated peduncle—the former character separating it from *Epitranus* and *Chalcitella*, which have a longish petiole; and the latter from *Chalcis* and *Halcitella*. *Conura* (in part) differs merely from it in the apical abdominal segments being prolonged into a "tail" as in *Phasgonophora*. I am very doubtful if this latter character is a generic one; the length of the "tail" depends upon the habits of the insects, having reference (as in *Torymus*) to the situation in which the prey of the *Chalcis* is hidden: if it is easily reached, the ovipositor is short; if more out of the parasite's reach, it is lengthened in correspondence. I find, furthermore, that so many gradations occur, say between an ovipositor of the length of that of *Phasgonophora thoracica* and an ordinary *Smicra*, that it is impossible to draw a line between them; and the difficulty of separating the genera in this group is increased by the fact that the length of the petiole also varies, so that thus the line of demarcation between *Smicra* and *Chalcis* is not always easily fixed.

C. G. Thomson (*l. c.*) has divided the *Smicra* of authors into two genera—*Smicra* (having for type the *Sphex sispes*, Linn.), distinguished by the thorax being entirely black, and the middle tibiæ without spurs; and *Spilochalcis*, with the thorax more or less marked with yellow, and the middle tibiæ with spurs. According to this definition, all the Central-American species known to me must be referred to *Spilochalcis*; but in the mean time I prefer to retain the older denomination.

The species show considerable variation in structure, especially of the femora and metathorax. The latter is usually divided by reticulations into more or less well-defined fields, the form of which may afford good specific characters, as they do in the Ichneumonidæ; but I am unable to say if their shape is constant in the same species, not having long series of any of them.

A. *Femoral teeth large, blunt, 4 to 8 in number.* (Species 1–10.)

1. Smicra mexicana.

Smicra mexicana, Cresson, Trans. Am. Ent. Soc. iv. p. 42. 13[1].

Hab. Mexico (*Sumichrast*[1]).

2. **Smicra dimidiata.**

Conura dimidiata, Sichel, Ann. Ent. Soc. Fr. (4) v. p. 390[1].

Hab. Mexico, Orizaba[1].

3. **Smicra pulchra.**

Smicra pulchra, Cresson, Proc. Ent. Soc. Phil. iv. p. 94[1]; Trans. Amer. Ent. Soc. iv. p. 50[1].
Smicra transitiva, Walker, Trans. Ent. Soc. (3) i. p. 371.

Hab. Cuba; Mexico[1].

4. **Smicra quadridentata.**

Rufo-testacea; ore, mesopleuris, maculis mesonoti cum scutello postice antennisque nigris; femoribus posticis 4-dentatis; antennarum apice rufo, scapo testaceo; alis fuscis, apice fere hyalinis. ♀.
Long. 8 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

The head, thorax, and legs are covered with a short, sparse, pale, glistening pubescence. The front is somewhat hollow in the centre; a blunt projecting ridge runs from a little above the antennæ to the clypeus, and on each side and above the latter is a hollow space; the lower part of the head is obscurely transversely striated; the upper part coarsely punctured, but not so strongly as the thorax. The space around the outer ocelli and a broad band from the lower ocellus to the base of the antennæ are black, as is also the back of the head. Scape longish, rather narrow; flagellum thick, the joints rather closely pressed together. Thorax coarsely and uniformly punctured all over; the scutellum projects behind, where it has, as usual, a broad border, which projects on each side into two blunt teeth; an obscure carina is in the centre at the base. The metathorax has a moderate slope, the second and third rows of fields are large; in a line with the centre of the scutellum is a carina which divides two large equal fields, and on each side of these is a longer one; immediately below the two square fields is a slightly larger pentagonal one, which has attached to it on either side a small square one; the other fields are larger than usual. The petiole of the abdomen is about one third of the length of the posterior coxæ, and about one fourth of the length of the abdomen, which is ovoid, narrowed towards the apex; the sheath of the ovipositor is black, and hairy at the apex. The posterior femora have four large, thick, slightly curved teeth, which reach beyond the middle of the tibiæ; they are black at the apex. The following parts on the thorax are black—a large mark in centre of mesonotum, longer than broad, a shorter and narrower line on either side of this, a much narrower transverse one running at the base of scutellum from one tegula to the other; a large oval mark on the apical portion of scutellum, the mesopleura, and mesosternum. Wing fuscous, the apex almost hyaline; throughout there is a distinct violet iridescence.

This may perhaps be *S. compactilis*, but it does not quite agree with the description, and the antennæ were broken off in Cresson's single specimen, so no description is given of these important organs. There is no mention of *S. compactilis* having a black transverse line at base of scutellum, and the abdomen is stated to be pale yellow at base and apex, which is not the case with *S.* 4-*dentata*.

5. **Smicra compactilis.**

Smicra compactilis, Cresson, Trans. Am. Ent. Soc. iv. p. 50[1].

Hab. Mexico (*Sumichrast*[1]).

6. **Smicra championi.** (Tab. V. fig. 1, ♀.)

Flava, flagello brunneo, apice nigro, facie linea medio, maculis thoracis et pedibus posticis nigris, femoribus posticis 4-dentatis, magnis; alis hyalinis.

Long. 7 millim.

Hab. Panama, Bugaba (*Champion*).

Scape almost cylindrical, shorter than the second, third, and fourth joints together; second joint a very little longer than third; annellus a little longer than broad; base of flagellum not much thinner than apex. Head deeply excavated in front in middle, the excavation black, as is also the back of the head. Prothorax and mesonotum closely covered with large round punctures; pleuræ obsoletely punctured, the centre with an oblique excavation, which is transversely striated and black. At the base of mesonotum is a broad, black mark which does not go completely across; in centre is a mark, narrow at base and apex, wide in middle, which joins the basal one to another transverse one at base of scutellum; from this a broad mark runs to the pronotum, which it joins in front of tegulæ, becoming wider as it reaches the pronotum. A narrow line goes through the centre of scutellum, the apex of which is entirely black; at the base the sides of scutellum are bordered with black. Scutellum bluntly bituberculate. Metathoracic fields moderately well defined, central appendiculated, wider than long, five-angled, the edges of metathorax bluntly tuberculated. Petiole half the length of abdomen, and scarcely half the length of posterior coxæ; these are black at the apex. There is a small mark, longer than broad, on upperside, a longer mark between and touching the two apical teeth; the trochanters, knees, and apex of tibiæ are also black; teeth black, except at the base; the three apical are three fourths of the width of femora, the basal shorter, thicker, and blunter. At the base of third abdominal segment is a narrow black band; ovipositor black.

This is a narrower and more slender species than *S. quadridentata*; the punctures on the head are almost obsolete, the front is more deeply excavated, petiole longer and thinner, coxæ longer and thinner, the teeth are longer and sharper, and the hair on the lower side of femora is very sparse, not dense as in *S. quadridentata*. It seems to come very near *S. exornata*; but that species has not the centre of the head black, the

antennæ have the flagellum "blackish above, fulvous beneath," and the posterior femora bear more black, including three spots on inner side.

7. **Smicra exornata.**

Smicra exornata, Cresson, Trans. Amer. Ent. Soc. iv. p. 50[1].

Hab. MEXICO (*Sumichrast*[1]).

8. **Smicra sexdentata.**

Flavo-testacea ; scapo supra, maculis 4 parvis mesonoti, linea mesopleurorum, coxis posticis supra, trochanteribus posticis femoribusque posticis 3-maculatis, nigris ; femoribus posticis sexdentatis, magnis ; alis hyalinis. Long. 8 millim.

Hab. MEXICO, Presidio (*Forrer*).

The face and underside of the scape are pallid yellow, the latter is hollowed on the outerside at the apex. The transverse furrow over the mouth is broad and deep; the foveæ at side of the clypeus deep, sharp at the ends, and half the length of the transverse groove. The face below the antennæ projects broadly, there being no keel; the head above the antennæ is deeply excavated, the excavation reaching to the lower ocellus; it also extends a little below the antennæ. Lower part of the head smooth, shining, the upper coarsely punctured. Pro- and mesonotum coarsely punctured, and covered (as is also the vertex) with long black hairs; the mesopleura in the centre deeply excavated, smooth, shining, impunctate; the rest of pleuræ coarsely punctured. The scutellum, as usual, is margined, and at the apex ends in two blunt teeth. The metathorax is reticulated into wide areas; in the centre is an irregular furrow, which widens in the centre, where there is, on each side of it, a narrow area; the upper area is large, pentagonal.

The teeth on side of the metathorax are mere rugosities, except the lowest; the hair on the metapleura is partly in tufts. The pronotum bears a narrow black line on either side; there is a short black transverse one on middle lobe of the mesonotum, a smaller round one at the sides, and a broad triangular one on apex of the scutellum; the hollow middle of the mesopleura is for the most part black. The abdomen is smooth, shining, impunctate, and of a lighter tint than the thorax; it is a little shorter than the head and thorax. The apical and middle segments are fuscous at the junction of the segments; ovipositor black; the apical segments covered with short black hair. Petiole thick, double long as broad.

The legs are of a paler tint than the thorax; on the upperside of the posterior coxæ is a broad black line which, at the apex, is continued all round as a black ring; the trochanters are for the greater part black; on the outer side of the femora, between the two apical teeth, is a black mark which is longer than broad. On the inner side above, extending from a little beyond the middle, is a broad black line, and there is a shorter

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one lower down in the middle. There is a blunt tooth on the posterior coxæ at the apex above; teeth on the femora large, black, except at the base; the basal one is thicker and stouter than the others, which are as long as one fourth of the breadth of the femora; they become a little longer towards the apex. Like the body the legs are covered with black hairs.

9. **Smicra octodentata.**

Flava; maculis et lineis thoracis, trochanteribus posticis et maculis femorum posticorum nigris; alis hyalinis, nervis nigris, femoribus posticis 8-dentatis, magnis, nigris.
Long. 6 millim.?

Hab. Mexico, Presidio, near Mazatlan (*Forrer*).

Flagellum about double the length of the scape, thick, increasing in thickness towards the apex, closely covered with a fuscous pile; beneath it is faintly reddish. Scape not carinated, moderately thick. Excavation on front deep, black beneath the ocelli; behind the head is black in the middle. Mesonotum coarsely punctured, mesopleura in middle striated in centre of depression, outside around it smooth, impunctate; the rest coarsely punctured, but not so strongly as above. Scutellum also coarsely punctured, margined behind, depressed in the centre. From the pronotum run four broad black bands towards the scutellum, but only the two inner ones reach it; in front of the scutellum is a black transverse band narrowed in the middle; at the side of the scutellum, behind the tegulæ, and in its centre is a small black mark. In front the mesopleura is black, as is also the central depression, and the metasternum is black. Metanotum reticulated, its sides straight. Posterior coxæ nearly as long as the femora, ovoid. Teeth on the femora large, curved, directed towards the apex; two apical smaller and blunter than the rest, and nearly united at the base. The knees and apex of the posterior tibiæ are brownish fuscous. The abdomen is unfortunately missing from the only specimen I have.

10. **Smicra sicheli.**

Conura scutellaris, Sichel, Ann. Soc. Ent. Fr. (5) iv. p. 388 (non Cresson); Cresson, Trans. Amer. Ent. Soc. iv. p. 59[1].

Hab. Mexico, Orizaba[1].

This species has eight acute teeth like *S. octodentata*, but the body is entirely yellow, and the mesonotum transversely striated. The abdomen is described as shortly pedunculated.

B. *Femoral teeth small, minute, more than* 8 *in number.*

1. *Body reddish, scarlet, or orange.* (Species 11–17.)

11. **Smicra coccinata.**

Smicra coccinata, Cresson, Trans. Amer. Ent. Soc. iv. p. 48. 30[1].

Hab. Mexico[1].

This species is nearly related to *S. nigromaculata,* but is sufficiently distinguished from it by the thorax being transversely striated, by having only two broad black marks on front of mesonotum, and the head yellowish.

12. **Smicra nigromaculata.** (Tab. IV. figg. 15, ♀; 15 *a*, maxilla; 15 *b*, posterior leg.)

Ferruginea; antennis, vertice, maculis mesonoti, coxis posticis supra tibiarumque posticarum basi nigris; femoribus posticis 13-dentatis; alis fuscis. ♂.

Long. fere 8 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Head, thorax, and legs covered with a long fuscous pubescence; face transversely striated, the striæ being, however, not very clearly defined; the upper part of the head is coarsely rugose; a sharp keel runs from the antennæ down the face to the clypeus; vertex depressed. Antennæ stout, somewhat compressed, and longer than the thorax; scape hollow on the underside, from the middle to the apex, in the centre; the face is pale testaceous in colour; the middle of the head above, from the ocelli to the base of the antennæ, black. The thorax forms an ovoid mass, much longer, broader, and higher than the abdomen; it is coarsely punctured. The scutellum is not much raised above the mesonotum; its apical margin has a broad border, and it does not project much over the metanotum, which is semiperpendicular. Close to the base of the scutellum, and in the centre, is a small round hollow, and from this runs an ill-defined furrow to the apex, where it projects into the border, which also projects a little. The metathorax ends on each side in a large, stout, blunt spine; metanotum reticulated.

The petiole is scarcely half the length of the long posterior coxæ, and about two thirds of the length of the abdomen. There are thirteen teeth on the femora; those at the base are small, but they become larger and more widely separated towards the apex.

The following parts are black:—a small round mark on each side of the pronotum; a large, somewhat triangular, mark on the mesonotum, with a red mark in its centre; there is a longitudinal narrower line on each side of this, which becomes united by a thin transverse line at the base of the scutellum, and this line again is united to the large central mark by a short longitudinal line; a transverse line at the base of the metanotum, and from the centre of this projects a short longitudinal line; a spot at base of the scutellum, the space behind the metathoracic spine, the metasternum, an oblique line on the mesopleura, mesosternum, the greater part of the posterior coxæ above, and

the apical half beneath, trochanters, posterior knees broadly, and the femoral teeth. The scape at its extreme base and on the underside to the apical third is pale reddish. The wings are lighter at the apex than at the base.

13. **Smicra flammeola.**

Smicra flammeola, Cresson, Trans. Amer. Ent. Soc. iv. p. 48[1].
Smicra flammula, Kirby, Journ. Linn. Soc., Zool. xvii. p. 66.

Hab. Mexico (*Sumichrast*)[1].

14. **Smicra erythrina.**

Smicra erythrina, Walker, Journ. Ent. i. p. 179[1]; Cresson, Trans. Amer. Ent. Soc. iv. p. 56[1].

Hab. Mexico, Orizaba[1].

15. **Smicra cardinalis.** (Tab. V. fig. 5, ♀.)

Coccinea; pilosa, antennis trochanteribusque posticis nigris; femoribus posticis 12-dentatis, nigris, tarsis pallidis; alis fumatis, apice fere hyalinis.
Long. fere 8 millim.

Hab. Panama, Bugaba (*Champion*).

Antennæ thick, scarcely becoming thinner towards the apex. Scape not longer than first joint of flagellum, compressed on lower side. Front broadly excavated. Each ocellus situated in a depression, the anterior but very little in front of the others. Mesonotum transversely rugose. Scutellum coarsely rugose, its apex produced at the sides into rounded membranous lobes; in the middle, between these membranous expansions, the scutellum is only faintly aciculated; behind it is semiperpendicular. Pleuræ rugose; the oblique excavation in the middle is broad, deep, smooth, and shining. Metathoracic fields large, central longer than broad, acute and narrow at the base and apex, the middle broader; there are six lateral fields, the lower ones with projecting teeth. Petiole a little longer than the abdomen, which is a little longer than broad. Ovipositor black, shortly projecting. Posterior coxæ longer than the petiole by nearly one third, slightly thicker in front of the middle than at the base, and becoming thinner towards the point. Femora almost shorter than petiole; teeth blunt; the apical widely separated; the hair on the head and thorax is black, on the legs white.

16. **Smicra ferruginea.**

Ferruginea; antennis (scapo excepto), cauda dentibusque nigris; femorum posticorum dentibus 14; alis hyalinis.
Long. $6\frac{1}{2}$ millim.

Hab. Guatemala, El Reposo (*Champion*).

The head and thorax are covered with a longish fuscous pubescence; the abdomen and legs with a shorter and paler one. Mesonotum and the scutellum transversely striated, but the striation on the latter is much less distinct. The scutellum behind

ends in the centre in a moderately sharp angle. The metathorax projects a little behind; the upper central field is not distinctly pedunculated; the base is wider than long; the lower central one is deeper, nearly round, and with a distinct margin; the lower lateral field is round, and is a little smaller than the lower central one. The petiole is nearly as long as the second abdominal segment. Abdomen a little longer than the head and thorax, somewhat narrow, compressed, and narrowing from the base to the apex. The teeth on the femora are small and blunt.

This species is closely related to *S. miniata*, but may be known therefrom by the thorax being very nearly of the same tint as the abdomen, by the thorax being more hairy, the hairs too being longer, by the upper central field being shorter and broader and not distinctly pedunculated, by the lower central one being larger than the lower lateral, the opposite being the case with *miniata*; the metathoracic teeth are much less developed. It is also a smaller insect, and differs otherwise in the teeth on the femora being fewer.

17. **Smicra miniata.**

Sordide rufo-testacea; facie, metathorace petioleque pallidis, antennis (scapo excepto) caudaque nigris; femorum posticorum dentibus 19; alis hyalinis.
Long. 8 millim.

Hab. NICARAGUA, Chontales (*Janson*); GUATEMALA, San Gerónimo (*Champion*).

Head and thorax sparingly covered with a short fuscous pubescence. Abdomen smooth, shining, almost glabrous. Head and thorax dull testaceous, mottled with paler spots. Abdomen reddish testaceous; the legs are also of this colour, but are paler at the base. Mesonotum transversely striated. Scutellum obscurely rugose-punctured and margined behind. The upper central area of the metanotum has a distinct peduncle; the area itself is longer than broad, rounded before, truncated behind; the lower central field is much smaller, smaller than the lower lateral one and not much larger than the upper lateral. Each side of the metathorax terminates in three large teeth, the two inner being placed nearer to each other than the second is to the outer; the inner tooth is the largest and sharpest. The peduncle is thick, stout in the middle, and a little shorter than the metathorax. The abdomen is a little longer than the head and thorax. The teeth on the femora are small.

2. *Body yellow, marked with black.*

a. *Wings for the most part blackish.* (Species 18–21.)

18. **Smicra trituberculata.**

Straminea; capite, antennarum flagello, mesonoti medio, scutello postice, abdomine postice, coxis tibiisque posticis (basi excepto) nigris; alis fuscis, medio hyalinis; femoribus posticis 13-dentatis, nigris, scutello trituberculato.
Long. 9 millim.

Hab. GUATEMALA, Panima (*Champion*); PANAMA, Bugaba 800 to 1500 feet (*Champion*).

The mouth and inner portion of the orbits of the eyes towards the middle are yellow, as in *S. miranda*; the edge of the head on the lower side is narrowly lined with yellow. The pro- and mesonotum coarsely transversely striated; posteriorly the latter (as is also the scutellum) is coarsely rugose-punctured; in the centre of the scutellum at the base is a blunt thick tooth or tubercle. The apex is bituberculate, as in *S. miranda*, these teeth being black at the top and entirely so behind, and are united by a broad black band, which is shaped like a half-circle, looked at from behind. Metathorax reticulated; there is a central ridge which bifurcates near the apex. The petiole is more than two thirds of the length of the posterior coxæ. The teeth on the hind femora are short and blunt, as in *S. miranda.*

Apart from the differences in coloration this species is readily known from *S. miranda* by the blunt tooth at the base of the scutellum and by the wings not being hyaline at the apex, there being a broad hyaline band extending half a line beyond. The arrangement of the areas on the metanotum is quite different, *S. miranda* having a lanceolate field exactly in the centre, with two wider fields on each side, the upper four- and the lower five-angled; in *S. trituberculata* there is in the middle only an irregular carina.

19. **Smicra miranda.** (Tab. IV. figg. 13, ♀; 13 *a*, metathoracic fields.)

Smicra miranda, Cresson, Trans. Amer. Ent. Soc. iv. p. 49 .

Hab. MEXICO [1]; GUATEMALA, San Gerónimo; Panima and Senahu (*Champion*); NICARAGUA, Chontales (*Janson*).

The amount of black on the mesonotum varies.

20. **Smicra lamyrus.**

Smicra lamyrus, Walker, Entomologist, 1842, p. 337; Cresson, Trans. Amer. Ent. Soc. iv. p. 58 [1].

Hab. MEXICO [1].

21. **Smicra montezuma.**

Smicra montezuma, Cresson, Trans. Ent. Soc. iv. p. 51 [1].

Hab. MEXICO [1].

b. *Wings hyaline.* (Species 22–36.)

22. **Smicra azteca.**

Smicra azteca, Cresson, Trans. Amer. Ent. Soc. iv. p. 51 [1].

Hab. MEXICO [1].

23. **Smicra captiva.**

Smicra captiva, Smith, Trans. Ent. Soc. (3) i. p. 42 (1862); Cresson, Trans. Amer. Ent. Soc. iv. p. 58 [1].

Smicra adaptata, Walker, Trans. Ent. Soc. (3) ii. p. 190 (1864); *cf.* Kirby, Journ. Linn. Soc., Zool. xvii. p. 66 [2].

Hab. PANAMA [1].—AMAZONIA [2].

24. **Smicra conjugens.**

Smicra conjugens, Walker, Notes on Chalc. p. 53 [1]; Cresson, Trans. Amer. Ent. Soc. iv. p. 51. 42 [1].

Hab. MEXICO [1].

25. **Smicra punctata.**

Chalcis punctata, Fabr. Ent. Syst. ii. p. 196 [1].
Conura punctata, Sichel, Ann. Soc. Ent. Fr. (4) v. p. 392 .
Smicra punctata, Cresson, Trans. Amer. Ent. Soc. iv. p. 57.

Hab. MEXICO [2].—WEST INDIES [1].

26. **Smicra pylas.**

Smicra pylas, Walker, Entomologist, p. 337 (1842); List of Chalc. i. p. 3 [1].

Hab. MEXICO [1].

This is probably identical with the last.

27. **Smicra juxta.**

Smicra juxta, Cresson, Trans. Amer. Ent. Soc. iv. p. 54. 49 [1].

Hab. MEXICO [1].

28. **Smicra lenta.**

Smicra lenta, Cresson, Trans. Amer. Ent. Soc. iv. p. 52. 43 [1].

Hab. MEXICO [1].

29. **Smicra tolteca.**

Smicra tolteca, Cresson, Trans. Amer. Ent. Soc. iv. p. 53. 45 [1].

Hab. MEXICO [1].

30. **Smicra geniculata.** (Tab. V. fig. 4, thorax.)

Flava; maculis thoracis, macula coxarum posticarum, trochanteribus genubusque posticis nigris; antennis nigris, subtus brunneis, femoribus posticis 13–14-dentatis, abdomine supra fusco-maculato; alis hyalinis. Long. $5\frac{1}{2}$ millim.

Hab. MEXICO, Presidio, near Mazatlan (*Forrer*).

Head smooth, shining, impunctate; front deeply excavated to the ocelli, the part between the antennæ keeled; there is a large shallow fovea above the clypeus on

either side below each antenna. Antennæ thick, the joints subequal and not pilose, but with the surface rough. The mesonotum is covered uniformly all over with moderately deep and closely set punctures; those on the collar are not so distinct; both are covered with longish black hairs. Pleuræ smooth and shining, impunctate; there is a narrow, transverse, black line behind the collar, a broader longitudinal one in the centre of the mesonotum, which becomes narrower as it reaches the pronotum; at its apex, and in front of the scutellum, is a broad transverse line *; there is a somewhat triangular or rather pear-shaped mark at the apex of the scutellum, and two marks on the postscutellum, all black. The scutellum is broadly rounded, with a broad margin above and beneath; the sides smooth, shining. The metanotum has broad irregular reticulations; the metapleura with indistinct reticulations. The petiole is a little more than half the length of the posterior coxæ, which have the teeth nearly of the same size, except the basal tooth, which is a little longer and sharper, and the apical teeth, which are a very little shorter, blunter, and more closely pressed together.

31. **Smicra octomaculata.** (Tab. V. fig. 8, thorax.)

Flava; antennis, scapo (subtus excepto), maculis sex mesonoti, apice coxarum posticarum, geniculis posticis, tibiarum posticarumque apice nigris, femoribus posticis 15-dentatis.
Long. 7–8 millim.

Hab. Panama, Bugaba (*Champion*).

The scape reaches to the upper ocelli, compressed beneath; flagellum longer than thorax. Front not very deeply excavated; lower part of head behind black. There are four broad longitudinal marks at the base of the mesonotum, a broad transverse one on the base of the scutellum and extending beyond it, a spot on the apex of it, a spot on the upperside of the coxæ at the apex, and the knees and apex of the posterior tibiæ, black. The teeth are small and blunt. Petiole about one half longer than broad. Abdomen as long as the thorax, acute at the apex; the terebra projecting, black. Thorax covered closely with round, shallow punctures; the pleuræ obsoletely punctured. Scutellum broadly bordered behind. In front of the prothorax is a large black spot.

A larger species than *S. maculicollis*, and sufficiently distinguished from it by the longer abdomen and ovipositor, by the larger size of the marks on the mesonotum, and by the absence of a spot on the base of the metanotum and the posterior coxæ.

32. **Smicra maculicollis.** (Tab. V. fig. 7, thorax.)

Flava; flagello antennarum, macula pronoti, lineis maculisque 4 mesonoti, scutelli apice, macula metanoti, macula ad basin coxarum posticarum, trochanteribus posticis abdominisque apice nigris; alis hyalinis, femoribus posticis 14-dentatis.
Long. 5 millim.

Hab. Panama, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

* I am not sure if this line is continuous, as the pin goes through its centre, and it may be only two disconnected marks.

Antennæ longish, and become distinctly thickened towards the apex; scape obscure yellow. On the thorax there is a transverse band at the base of the scutellum, and from the middle of this runs a narrow line to the pronotum; at the base of the middle lobe is a longish line, in the lateral one a shorter and more rounded mark, and in the middle of the pronotum, in front, is a small mark somewhat broader than long. The middle of the scutellum at the apex is black, the black mark being much narrowed to a point at the base; at the apex the scutellum is margined, semitruncated in the middle, looked at from the head. The abdomen is shorter than the head and thorax, bluntly pointed at the apex, brownish above, and with an obscure blackish band in the centre above. The petiole is about one third of the length of the posterior coxæ. There are fourteen or fifteen teeth on the posterior femora; these are obscurely brownish at the sides and above, and the knees are obscure blackish.

This species differs from *geniculata* in having a black mark on the middle lobe of the mesonotum; the flagellum is entirely black except at base beneath, and there is only a single black mark at base of metanotum.

33. **Smicra centralis.** (Tab. V. fig. 6, thorax.)

Flava; antennis (scapo excepto), maculis mesonoti, metanoti medio, maculaque coxarum posticarum nigris; abdominis dorso genubusque posticis fusco maculatis; femoribus posticis 12-dentatis; alis hyalinis.
Long. fere 6 millim.

Hab. Mexico, Presidio, near Mazatlan (*Forrer*).

Head smooth, shining, impunctate, but the sides have a blistered look; front deeply excavated and carinated between the antennæ. Over the oral region is a semioval indistinct suture, surrounding the clypeus. The antennæ become gradually thickened towards the apex. Mesonotum and collar coarsely punctured and sparsely covered with black hairs. There is a broad mark in the centre of the pronotum in front, a broad transverse line on the mesonotum next to the collar, and which is narrowest towards the centre, a broad longitudinal line in the lateral lobe, but which does not extend to the apex, a broad transverse line in front of the scutellum, which becomes expanded at the sides, and from it runs a broad longitudinal line in centre to the line in front of the collar; a wide longitudinal line in the centre of the scutellum, narrow at either end, but especially at the base, and the centre of the metanotum is broadly black. The mesopleura are broadly excavated in the middle from the tegulæ, where the excavation is narrow and obscurely transversely striated, and runs obliquely to the second pair of coxæ, becoming widened as it does so. This excavation is clearly margined, is black in the centre on the lower three fourths, and is also striated in the middle, but not at the sides, which are smooth and unpunctured. There is another deep narrower and more perpendicular suture running from the tegulæ to the first pair of legs, and this is black in the middle. The scutellum is bordered, rounded at the sides, somewhat more transverse at the middle, where the border is slightly interrupted and depressed; the upper half

of the metanotum has a blistered appearance, and is separated from the lower half by a ridge; the reticulations are obscure; the metapleura are obscurely punctured; petiole thick, about one third of the length of the posterior coxæ. Except that the basal tooth is somewhat longer and sharper, and the apical blunter, shorter, and more closely pressed, the teeth are about the same size. The ovipositor is black; the abdomen and the upper part of the posterior coxæ are suffused with testaceous.

34. **Smicra dorsivittata.** (Tab. V. fig. 2, thorax.)

Flava; antennis supra, linea mesopleurorum, lineis mesonoti, striga media scutelli, metanoto supra, macula coxarum posticarum, genubus posticis læte, trochanteribus fasciisque abdominis nigris; alis hyalinis.

Long. ♀ fere 7 millim., ♂ 5 millim.

Hab. Volcan de Chiriqui, 3000 to 4000 feet (*Champion*).

Antennæ thickish and becoming slightly thicker towards the apex; underneath the colour is brownish; the apex of the scape only is black on the upperside. There is a broad black band in front of the mesopleura touching the prothorax. Along the entire length of the middle lobe of the mesonotum and touching the pronotum is an irregular black line, which is thinnest in the middle. At the end of this and on the lateral lobe is a broad black mark, which increases in size a little beyond the middle, and decreases again at the apex; in front of the scutellum is a longish transverse line, which is broader than that at the base of the mesonotum, and the two are united by the central broad band in the middle of the mesonotum; this central stripe broadens out on both sides a little beyond the middle, narrowing again towards the scutellum. In the centre of the latter is a broad mark, narrow at the base, becoming wider and rounder at the apex. Apex of the scutellum broadly and roundly margined; in the middle the margin is a little depressed.

The abdomen is a little longer than the head and thorax; the apex sharply pointed. Petiole one third of the length of the hinder coxæ; the apex is deep black, and on the back are four brown transverse bands. The basal tooth on the hind femora is large, acute; there are twelve teeth in all.

The male has the mark on the scutellum smaller and broader compared to its length; the black fasciæ on the abdomen are bordered with obscure brown, the scape is more distinctly curved on the underside, and, as usual, the petiole is longer.

This species differs from *S. geniculata* in the black mark on the lateral lobe being much larger and joined to that at the base, the other marks on the body being also much larger; the abdomen is longer, narrower, and more distinctly marked with black on the back; the black on the metanotum is continuous, and the teeth on the femora are larger and fewer in number.

35. **Smicra panamensis.** (Tab. V. fig. 3, thorax.)

Hab. Panama, Bugaba (*Champion*).

In size, coloration, and arrangement of the markings, this species agrees with *S. dorsivittata*, except that all the black marks are longer and broader, and in addition to those present on *S. dorsivittata* there is a small black mark immediately behind the tegulæ, one on either side behind the scutellum, and there is a black line on the depressed space on the mesopleura; the head is longer and thicker, the posterior coxæ broader and shorter compared to the femora, being, with the trochanters, shorter than they; while with *S. dorsivittata* they are longer than the femora; the antennæ are, if any thing, shorter and thicker, and the third joint is longer compared to the fourth; the abdomen is also a little shorter. The male I have not seen.

36. **Smicra nigrifrons.** (Tab. 5. fig. 9, thorax.)

Flava; abdomine rufo-brunneo, flavo variegato, lineis et maculis mesothoracis et macula coxarum posticarum nigris, flagello antennarum brunneo, supra nigro; femoribus posticis 20-dentatis; alis hyalinis. ♀.
Long. 6 millim.

Hab. PANAMA, Bugaba (*Champion*).

Head and thorax densely covered with long black hair; hair on the abdomen shorter and thinner. Antennæ thick, the flagellum of nearly uniform thickness, closely covered with a pale pubescence; third joint nearly one half longer than the fourth; last three joints closely united; scape slightly bent at the base, scarcely keeled on the lower side. Head broad, the excavation above the antennæ shallow; behind the head is black; a narrow black line runs from the anterior ocellus to this black portion, and there is a triangular black mark above the antennæ. There is a small black mark in front of pronotum. The space between the prothorax and mesothorax laterally and between the latter and metathorax black; the shallow space on the mesopleura for the greater part black. The edge of the mesonotum in front, the borders of the middle lobe to the scutellum, the base of the scutellum, and a longitudinal line running from the last to the line at base of the mesonotum black; these lines are narrow and of nearly equal width. There is a small black mark on the lateral lobe of the mesonotum, a longitudinal narrow line on the scutellum; the sides of the latter and an oblong mark on the posterior coxæ black. Scutellum margined behind, and narrowed to a blunt point at the apex. Reticulations on the metanotum indistinct; above it has a blistered appearance. Petiole thick, one half longer than broad, shorter than the metathorax. Posterior coxæ with the trochanters as long as the femora. Femoral teeth very minute and closely set, forming a serrated edge. Abdomen a little longer than the head and thorax together, the apex acuminate, with the ovipositor projecting, black. Nervures on the wing fuscous.

The three narrow continuous lines on the mesonotum and the rufous abdomen variegated with yellow separate this distinct species from the other yellow forms. The arrangement of the black lines and spots on the thorax is nearly the same in *S. mariæ*, Riley; but that has the base of the metathorax black, and the abdomen of the same colour as the thorax, and with six black bands on the back.

c. *Wings hyaline, with a moderately large fascia stretching across from the cubitus.*
(Species 37.)

37. Smicra maculipennis.

Testacea; antennarum apice, mesonoto, abdominis dorso, petiole pedibusque posticis nigro-maculatis; alis hyalinis fascia fusca.
Long. 4 millim.

Hab. Panama, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

The body is covered with a long white pubescence; the head is finely punctured; pronotum, mesonotum, and metapleura coarsely punctured; abdomen smooth, shining. The head is only slightly hollowed in front; between the antennæ it projects broadly and bluntly. On the mesopleura is an oblique broad hollow, which is transversely striated; the pronotum is of nearly equal breadth throughout above; the sides are impunctate, as is also the mesopleura in front of the hollow space. The scutellum is margined, but not very strongly, behind, where it is somewhat sharply rounded; the metanotum slopes gradually to the petiole; it is blistered above. There is a central keel which bifurcates in the middle; the other keels are rather indistinct. The petiole is a little more than one third of the length of the posterior coxæ; it is striated and ridged at the sides. At the apex of the posterior coxæ is, in the centre, a large tooth, and nearer the apex and on the inner side of it is a smaller tooth. The coxæ are longer than the femora; the teeth on the latter are numerous and minute. The antennæ are thickened towards the apex; the scape is hollow at the side, the two apical joints are black. The greater part of the middle lobe of the mesonotum, parapsides, the apex of the scutellum in the middle, metapleura, and metasternum in part, the apex of posterior coxæ (where they are transversely striated), the posterior femora on lower side, and the middle of the abdomen, black. The four anterior legs are pale testaceous.

3. *Body yellowish or testaceous, without any black markings.*
(Species 38–40.)

The three species known from Central America of this type of coloration may be recognized by the following Table:—

Petiole long, narrow, half the length of posterior coxæ; a small fascia at cubitus . . . . . (38) *fulvo-variegata.*
Petiole short, thick, not half the length of coxæ; no fascia at cubitus:
  Abdomen acuminate at tip; sheath of ovipositor projecting; posterior femora with 19 teeth . . . . . (39) *fulvo-maculata.*
  Abdomen obtuse at tip; sheath of ovipositor hidden; posterior femora with 12 teeth . . . . . (40) *obtusiventris.*

38. Smicra fulvo-variegata.

Flava, fulvo-variegata ♂, flavo-variegata ♀; abdomine fulvo, flavo-maculato, flagello antennarum fusco, femoribus posticis 17–19 dentatis; alis hyalinis, macula substigmaticali fusca, nervis fuscis.
Long. fere 5 millim.

Hab. MEXICO, Presidio (*Forrer*).

In one specimen the head and thorax are fulvous, variegated with yellow, in the other they are yellow variegated with fulvous; in both the abdomen is fulvous, marked on the back at the junction of the segments with yellow bands. Scape narrow, curved, cylindrical; joints of the flagellum closely united, covered with a close pile. Head not excavated in front beyond a furrow which runs down from the ocelli, projecting broadly between the antennæ, the projection being triangular. Furrow behind the hind ocellus deep, wide. Thorax obscurely punctured, almost impunctate, pleural depression obscurely striated. Scutellum bordered behind, ending in a blunt point. Metanotum with faint reticulations at the apex, projecting at the side into a large tooth. Petiole about one half the length of the coxæ. Abdomen of the length of the thorax, the apex bluntly acuminate; ovipositor shortly projecting. Posterior femora not much longer than coxæ.

The male has the petiole, if any thing, shorter and thicker than in the female, the abdomen is longer and thinner, and the scape is thicker at the apex and carinated beneath.

The absence of black on the thorax and petiole, smaller fuscous mark on the wings (it not reaching to the middle of the wing), longer petiole, and almost impunctate thorax easily enable this little species to be separated from *S. maculipennis*.

39. **Smicra fulvo-maculata.**

Citrina, fulvo-maculata; antennarum flagello nigro, subtus brunneo; alis hyalinis, nervis sordide flavis; femoribus posticis 19-dentatis.

Long. 6 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ thick, becoming somewhat thicker towards the apex, the joints distinctly separated at the apex; scape nearly straight, not carinated beneath. Furrow between the two posterior ocelli deep, broad, and there is a curved groove on their outer side. Head and thorax covered with a pale, glistening pubescence. Mesonotum obscurely punctured, transversely striated in front of the scutellum, which is a little rounded at the base; its apex produced into a point, margined. Metanotum with a central keel, which bifurcates in the middle, forming a narrow longish cellule; from the point where it bifurcates a keel runs to the side. Above this keel the metanotum is smooth, below it reticulated; sides of the metanotum straight, margined. Petiole thick, not one half longer than broad. The abdomen is obscure fulvous; but I am not quite sure if this is not owing to discoloration; the base is yellow; sheath of ovipositor black, projecting. Posterior knees and femora mostly fulvous.

40. **Smicra obtusiventris.**

Flava; antennis supra nigris, subtus sordide rufis, scapo flavo, tarsis posticis apice nigro; femoribus posticis 12–13-dentatis, parvis, nigris; alis hyalinis.

Long. 5 millim.

Hab. Mexico, Presidio, near Mazatlan (*Forrer*).

The face is smooth, shining, impunctate; over the mouth is a short transverse groove, and there is a small indistinct fovea on either side of it; above the antennæ the front is deeply excavated. Thorax covered with black hairs; mesonotum and scutellum coarsely but not very strongly punctured; pleuræ smooth, shining, impunctate, and with a large oblique excavation in the middle; the scutellum is bordered behind, but there are no teeth. The metathorax has a central keel to the middle, having a large area on either side, and ending in a smaller area, which is broader than long.

There are no lateral teeth. Petiole is short, not being much longer than one third of the length of the coxæ. The rest of the abdomen forms a longish oval, and is shorter than the posterior coxæ. The teeth on the femora are blunt and not very closely set; the basal three, however, are closely pressed together. Alar nervures fuscous. The thorax is darker than the abdomen in colour, being honey-yellow. In the female the abdomen is nearly oval, more obtuse at the apex than at the base. The ovipositor proper projects a little, but not its sheath.

S. delicatula, Cresson, from Texas, comes near to, if it be not actually identical with, the present species; but the Texan species is described as having the thorax "imperceptibly punctured, almost smooth," and the femoral teeth "numerous, very minute," terms which scarcely fit.

4. *Body black, marked with yellow.* (Species 41–52.)

41. **Smicra pompiloides.**

Smicra pompiloides, Walker, Notes on Chalc. p. 53; Cresson, Trans. Amer. Ent. Soc. iv. p. 55[1].

Hab. Mexico[1].

42. **Smicra lecta.**

Smicra lecta, Cresson, Trans. Amer. Ent. Soc. iv. p. 44[1].

Hab. Mexico[1].

43. **Smicra abdominalis.**

Smicra abdominalis, Walker, Journ. Ent. i. p. 177; Cresson, Trans. Amer. Ent. Soc. iv. p. 57;
cf. Kirby, Journ. Linn. Soc., Zool. xvii. p. 65[1].
Smicra ambigua, Cresson, Trans. Amer. Ent. Soc. iv. p. 44.

Hab. Mexico[1].

44. **Smicra mendica.**

Smicra mendica, Cresson, Trans. Amer. Ent. Soc. iv. p. 41[1].

Hab. Mexico[1].

45. **Smicra tenebrosa.**

Smicra tenebrosa, Walker, Journ. of Ent. i. p. 181 [1].

Hab. Mexico [1].

46. **Smicra dorsimaculata.**

Nigra; orbitis oculorum, pronoto laterali, maculis mesonoti scutelloque rufo-flavis; abdomine flavo-maculato; tarsis flavis, tibiis femoribusque posterioribus rufo-flavo maculatis.

Long. $3\frac{3}{4}$ millim.

Hab. Guatemala, Volcan de Atitan 1500 to 3500 feet (*Champion*).

Mandibles yellow; the reddish yellow line round the eyes is narrow, and is interrupted at the top and bottom; the head in front is rough, the front is but little excavated. Thorax coarsely punctured, and covered with a sparse white pubescence; pronotum lined with reddish yellow all round; behind and close to the antennæ the band becomes broader. On the mesonotum and touching this band are two small marks, which are longer than broad; a broad line runs from it to the tegulæ, and a broad band stretches from one side to the other. The scutellum is yellow, with a narrow black longitudinal line running down the centre, and with two large irregular reddish brown marks at either end, which stretch nearly right across; the apical one extends to the apex of the scutellum, which is somewhat acutely pointed. The metanotum is irregularly punctured. The petiole thick, and about three fourths of the length of the posterior coxæ. At the base of the abdomen are two short yellow marks; behind these two longer and broader ones, and close to the apex are two roundish ones. The trochanters are testaceous; the four anterior tibiæ are reddish yellow, black behind; the posterior black with a reddish yellow mark close to the base, and a larger one at the apex on the outer side and at the sides. The posterior femora are black, the apical third on the outside yellow, variegated with brown; the apex is yellowish brown on the inner side also. The teeth are small, and occupy the whole of the underside.

47. **Smicra toluca.**

Smicra toluca, Cresson, Trans. Amer. Ent. Soc. iv. p. 42 [1].

Hab. Mexico [1].

48. **Smicra petioliventris.**

Nigra; ore, orbitis oculorum, abdominisque basi flavis; thorace, abdomine pedibusque flavo et brunneo maculatis.

Long. 4 millim.

Hab. Guatemala, Volcan de Atitlan 2500 to 3500 feet (*Champion*).

The yellow band round the eyes is narrow, and is interrupted in the middle; on the underside the scape is yellowish at the base. The sides of the pronotum are broadly

yellow, and with a black mark in the centre of the yellow portion. The sides of the middle lobe of the mesonotum are bordered with yellow, somewhat interrupted towards the middle; the sides of the scutellum are broadly bordered with yellow, and towards the apical third the yellow projects in a triangle to the middle on both sides; the apex is depressed and rounded, not projecting much over the metanotum, which is yellow at the sides close to the petiole; the petiole is narrow and about three fourths of the length of the abdomen, which is not longer than the posterior coxæ. The sides and ventral surface of the abdomen are reddish yellow. On the top at the base is a large triangular mark, of which the sharp end is in front; behind this is a large broad transverse mark, interrupted at the top; behind this, again, are three shorter yellow marks, which do not reach the top, and close to the apex and more to the top is a more rounded mark. All these have the yellow surrounded with brown, which passes imperceptibly into the yellow. The four anterior legs are yellow, the femora having a testaceous tinge. Internally the apical two thirds of the posterior femora are yellow, bordered with brown; on the outside the apical two thirds are yellow, except at the top, and the apex is more or less brownish; on the top above and in front of this yellow portion is a yellow mark, which is longer than broad. The posterior tibiæ are yellow, variegated with testaceous and posteriorly with black.

49. **Smicra divisa.**

Smicra divisa, Walker, Journ. of Ent. i. p. 178 [1].

Hab. Mexico [1].

50. **Smicra lauta.**

Smicra lauta, Cresson, Trans. Amer. Ent. Soc. iv. p. 45 [1].

Hab. Mexico [1].

51. **Smicra nigriventris.** (Tab. XIV. figg. 14; 14 *a*, posterior leg.)

Nigra; facie, orbitis oculorum, macula magna pronoti, tegulis, maculis 2 mesonoti, scutello, femoribus fere totis, tarsis tibiisque 4 anterioribus et posticarum basi flavis.

Long. $4\frac{1}{2}$ millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

The body is covered with a longish pale pubescence. Antennæ thick, the joints closely pressed together; the apex sharply conical and brownish on the underside. Scape yellow on the underside; the face below the antennæ, the lower orbits of the eyes within and without are yellow, but the part opposite the ocelli is black; the front between the ocelli and the base of the antennæ black. The mesonotum is punctured; the mark on the pronotum reaches to near the middle above, is large and somewhat triangular, but longer than broad. The longitudinal marks on the mesonotum reach a little beyond the middle, and converge at the apex. The scutellum is almost entirely

black; there is a narrow black line running down the centre and dividing the yellow in two; the apex is sharply rounded and entire. Metanotum distinctly reticulated. Petiole thick, and scarcely one half of the length of the posterior coxæ. The four anterior coxæ and femora are for the greater part yellow on lower side, and the latter are lined with black behind. The posterior femora are yellow on the outside, except at the apices and a large bell-shaped mark in the middle which are black; on the inner side they are black, with a yellow mark at the apex; the teeth are seventeen in number, are closely pressed and indistinct at the base, and become larger towards the apex; the extreme base of the hind tibiæ is black; the yellow mark on it does not extend to the inner side.

PHASGANOPHORA.

Phasganophora, Westwood in Griffith's Animal Kingdom, Insects, ii. p. 432, t. 77. f. 2 (1832); Walker, Entomologist, i. p. 138 (1840); Sichel, Ann. Soc. Ent. Fr. p. 357 (1866).
Trigonura, Sichel, loc. cit. p. 358.

The typical representatives of this genus or subgenus have the antennæ inserted in the middle of the face, and the abdomen sessile as in *Chalcis*, and merely differ from that well-known genus in the apical abdominal segments being prolonged into a "tail," which forms a sheath for the ovipositor. This is the division of "*Phasganophoræ chalcidiformes*" of Sichel, and to it the subgenus *Trigonura* belongs, it differing merely from typical *Phasganophora* in the tail being "depressa, subtriangularis." This section might also be referred to the genus *Conura*, Spinola, which, as defined by Sichel, contains species with a sessile abdomen=*Conuræ chalcidiformes*, and with it petiolated =*Conuræ smicriformes*; the sole difference of any value between *Conura* and *Phasganophora* consisting in the tail, "formée chez les *Conura* par le cinquième segment et l'epipygium, allongés et rétrécis d'un côté à l'autre, sans aucune participation de l'hypopygium," while with *Phasganophora* the hypopygium alone forms the "tail." I find, nowever, so many transitions in this respect, that the value of this character does not appear to me to be of much importance; and it is, moreover, a purely sexual one. To *Phasganophora* Sichel adds another subgenus, *Allocera*, remarkable for having the antennæ inserted immediately over the mouth=*Phasganophoræ halticellæformes*. It would thus appear that species having the apical segments of the abdomen elongated exist which have the characters of *Chalcis*, *Halticella*, and *Smicra*; and in separating them we must either give paramount importance to the form of the tail, or to such points as the manner in which the antennæ and abdomen are inserted. It seems to me that as the latter characters are common to both sexes, they are of the most importance for taxonomic purposes, especially as the structure of the tail is not constant. Walker ('Notes on Chalcididæ,' p. 39) combines *Phasganophora*, *Allocera*, and *Trigonura* with *Halticella*. André (Ann. Soc. Ent. Fr. 1881, p. 337) would unite the *Phasganophoræ chalcidiformes* and the *Conuræ chalcidiformes* with *Chalcis*, the *Phasganophoræ smicri-*

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formes and the *Conuræ smicriformes* to *Smicra*, and *Allocera* to *Halticella*; and with this opinion I am inclined to agree. As, however, it is possible that an accession of fresh material (and especially of males) may show that the elongation of the abdomen into a tail may be after all of some generic value, I have retained in the meantime *Phasganophora*, with *Conura* as a synonym.

1. **Phasganophora condalus.**

Phasganophora condalus, Walker, Entomologist, i. p. 135 (1840)[1].
Phasganophora thoracica, Sichel, Ann. Soc. Ent. Fr. (4) v. p. 361, t. 9. f. 5[2].

Hab. Mexico, Orizaba[2]; Guatemala, Las Mercedes 3000 feet (*Champion*).—Brazil[1].

The quantity of black on the thorax and abdomen varies a good deal.

2. **Phasganophora rufitarsis.** (Tab. V. fig. 10, ♀; 10 *a*, apex of abdomen; 10 *b*, posterior leg; 10 *c*, labium; 10 *d*, maxilla.)

Nigra; flagello antennarum, tarsis abdomineque rufis; alis flavescenti-hyalinis, basi fumata, femoribus posticis 8-dentatis.
Long. 9 millim.

Hab. Panama, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

Face covered with a silvery white sparse pubescence. Thorax with a close fuscous pile; apex of the abdomen with long reddish hairs. Head and thorax coarsely punctured; the hollow oblique space on the mesopleura transversely and coarsely striated. Between the antennæ the front projects, and there is a hollow space between their base and the lower ocellus, this space having a raised border which goes round the ocellus. Mandibles piceous. In front the pronotum is striated. The apex of the scutellum projects in the middle; this projection is emarginated in the middle, and is hollow in the centre above. Metanotum reticulated; its central field is lanceolate in shape. A little below the wings and behind them is a blunt tooth. The apex of abdomen (cauda) is about two thirds of the length of the abdomen and is curved. The teeth on the posterior femora are large; the latter are about the length of the coxæ and trochanters. At the base the abdomen is blackish, and there is in the centre above a triangular depression.

This species comes apparently nearest to *P. conigastra*, Perty, from South America; but that species has the abdomen black. From the Mexican *P. rufiventris* the red antennæ readily separate it.

3. **Phasganophora rufiventris.**

Phasganophora rufiventris, Sichel, Ann. Soc. Ent. Fr. (4) v. p. 360, t. 9. f. 4[1].

Hab. Mexico, Orizaba[1].

4. **Phasganophora crassicauda.**

Phasganophora (*Trigonura*) *crassicauda*, Sichel, Ann. Soc. Ent. Fr. (4) v. p. 377, t. 10. f. 1 [1].

Hab. Mexico, Orizaba [1].

CHALCIS.

Chalcis, Fabricius, Mant. Ins. i. p. 272; Spinola, Ann. Mus. xvii. p. 147; Walker, Ent. Mag. ii. p. 27.

Not very many species of this genus are known; they are found generally distributed over the New and Old Worlds. They are very similar in coloration, being black, with the legs marked with yellow or white.

1. **Chalcis pubescens.**

Chalcis pubescens, Walker, Notes on Chalc. iii. p. 47 [1].

Hab. Mexico [1].

2. **Chalcis comitator.**

Chalcis comitator, Walker, Trans. Ent. Soc. 3rd ser. i. p. 350 [1].

Hab. Mexico [1].

3. **Chalcis compacta.**

Chalcis compacta, Walker, Journ. Ent. i. p. 183 [1].

Hab. Mexico [1], Orizaba.

4. **Chalcis ovata.** (Tab. IV. fig. 16, ♀; 16 *a–c*, trophi; 16 *d*, posterior leg.)

Chalcis ovata, Say, Long's Second Exped. ii. p. 326 (1824); Cresson, Trans. Amer. Ent. Soc. iv. p. 59 [1].

Chalcis annulipes, Walker, Ent. Mag. ii. p. 29 (1835).

Chalcis incerta, Cresson, Proc. Ent. Soc. Phil. iv. p. 101.

Brachymeria panamensis, Holmgren, Eugen. Resa, Ins. p. 437 [2].

Hab. United States [1].—West-Indian Islands.—Mexico [1]; Guatemala; Panama [2].

This is perhaps *C. flavipes*, Fabr. (non Panz.); but the description is not very good.

HALTICELLA.

Halticella, Spin. Ann. Mus. Hist. Nat. vii. p. 148.

A genus of wide distribution, principally distinguished from *Chalcis* by the antennæ being inserted immediately over the mouth.

— 1. **Halticella ornaticornis.**

Nigra; basi antennarum, scapo, flagelli articulis 2–3, tegulis, trochanteribus, femoribus anterioribus subtus, tibiis anterioribus proparte tarsisque rufis; alis hyalinis, macula subcostali fusca.
Long. 5 millim.

Hab. PANAMA, Bugaba (*Champion*).

Head and thorax strongly punctured, covered with a stiff silvery pubescence. Abdomen smooth and shining, the apical segments thickly covered with a longish silvery-white hair. Head not very deeply excavated in front. Antennæ a little longer than the head and thorax together, moderately stout, thickest at the apex. Scutellum bordered behind, the border incised in the middle. Metathorax strongly reticulated. Petiole very short, so that the abdomen is semi-sessile. The four anterior tibiæ are black (more or less) in the middle; the thick posterior femora have no teeth beneath; the spurs on the hind tibiæ are short and thick. Wing-nervures testaceous, except at the black fascia in front of the cubitus, which is also black. The ovipositor projects a little.

ACANTHOCHALCIS.

Antennæ 11-jointed, the flagellum of nearly equal thickness throughout; the first two joints small, the rest much longer than broad, the last conical at the apex, slightly longer than the penultimate (I am not quite sure but that the last joint in reality represents two closely united), inserted not far from the mouth. Antennal groove deep, reaching close to the ocelli, and only wide enough to receive the two antennæ; its sides with a large broad projecting border. Pronotum large, subquadrate, projecting in the middle so as to fit into the head, which is concave behind; sides of the prothorax excavated. Metathorax produced at the sides into a large, flat, triangular mass. Abdomen sessile, its apex produced into a sharp spine; at the sides, where it clasps the ovipositor, it is toothed. Ovipositor as long as the abdomen. Cubitus half the length of the ulna; otherwise the nervures in both wings are as in *Leucospis*. Posterior femora thickened, toothed on the underside; claws simple; tibiæ with one spur at the apex.

In the form of the antennæ, head, thorax (except in the peculiar shape of the metathorax), legs, and wings this genus does not differ from *Leucospis*, which it also resembles in its large size; but the form of the abdomen and ovipositor is very different, the wings, also, not being folded wasp-like, as in *Leucospis*. The form of the last abdominal segment is different from anything known in other *Chalcidina* with elongated ovipositors, for it is not developed into a long sheath clasping the ovipositor in all its extent. The apical segment is not unlike what we have in *Sirex*; it bears a stigma.

1. **Acanthochalcis nigricans.** (Tab. VI. fig. 14, ♀ ; 14 *a*, apex of abdomen.)

Nigra ; geniculis, abdominis apice terebraque rufis ; alis hyalinis, apice fumatis.
Long. 11 millim., terebra 4 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Head and thorax coarsely and rugosely punctured, finer at the base of the mesonotum and sides of the collar. Mesopleura with a large deep oblique excavation (which is finely striated and reaches to the bottom) between the second and third pairs of legs; close to the prothorax there is a semi-perpendicular excavation, also striated. Scutellum large, rounded above; a little down from the apex is a projecting neck, above which is a single row of reticulations, and there is another row extending right across the thorax beneath it. Metanotum contracted in the middle; the sides project into a large triangle, flat above, the apex of it projecting over the rest. Abdomen closely punctured, except at the junction of the segments, where there is a shining impunctate band. The ovipositor is broad, compressed laterally, and with a groove in the side, which, however, does not extend to the apex; there are three large teeth on the lower side of the apical segment. Coxæ (especially the large hind pair) punctured, as are also the posterior femora. The tarsi are covered closely with bristle-like hair, especially thick on the underside; tibiæ with longer, thinner, more depressed hair. The head is covered with white glistening hair; there is a tuft of white silvery hair on either side in front of the scutellum, a tuft at the base of the hind coxæ, a smaller one at the apex, and a large tuft on each side of the third and fourth segments. The edge of the pronotum behind, a spot below the tegulæ, one on the mesopleura, and more or less of the scutellum are ferrugineous.

EUCHARINA.

This group contains some of the most remarkable forms of Chalcididæ. Considerable variation is shown in the structure of the antennæ; in many males the joints bear long rami, either one or two to a joint. The most striking peculiarity, however, is exhibited by the scutellum, which in most of the genera is provided at the apex with two processes which, from being mere short teeth in some, become developed in others into long processes which project beyond the apex of the abdomen, and may be so broad as to cover it completely.

Genera are found in all parts of the world; these at present stand in need of revision. There are not, I think, more than six South-American genera, and only four have yet been found within our limit. These may be distinguished as follows:—

1 (2). Scutellum simple at apex. Antennæ 13-jointed, simple in both sexes . *Orasema.*

2 (3). Scutellum ending in two short blunt teeth, which are not much longer than broad. Sides of metathorax with a leaf-like expansion at apex. Antennæ serrate in female, simple in male . . . . . *Lophyrocera.*

3 (2). Scutellum ending in processes which are as long as the abdomen. Antennæ in male flabellate.
4 (5). The third joint of antennæ as long as all the succeeding joints together. *Lirata.*
5 (4). The third joint not much longer than fourth . . . . . *Kapala.*

LIRATA.

Antennæ 10-jointed, simple, pilose; the third joint nearly as long as all the succeeding together; all the joints thicker at the apex than at the base. Scutellum hollowed in the centre above, and having at the apex two thickish curved spines, which reach nearly to the apex of the abdomen, and not projecting beyond the wings when these are folded along the sides. Metathorax simple, without tubercles. Petiole nearly as long as the abdomen, stout, cylindrical.

The very long third joint of the antennæ enables this genus to be known from *Thoracantha* and *Kapala.*

1. **Lirata luteogaster.** (*Schizaspidia luteogaster*, Tab. V. fig. 16; 16 *a*, antenna.)

Nigra; pedibus scapoque antennarum flavis; abdominis apice læte luteo; alis hyalinis.
Long. 6 millim.

Hab. PANAMA, Island of Taboga (*Champion*).

The antennæ are nearly as long as the abdomen, become slightly thickened towards the apex, and are covered with closely pressed hairs. The apical joints are shorter and more distinctly separated than the basal; the last joint is double the length of the preceding. Head covered with waved reticulations; the vertex in the middle is depressed, opaque, and obscurely reticulated. Thorax covered with more or less waved reticulations all over, and sparsely with longish black hairs; at the base, in the centre, the mesonotum is depressed, the depression being smooth and shining, much longer than broad, and narrowest at the apex. Scutellum broadly depressed in the centre, finely aciculated. The processes of the scutellum converge slightly at the apex; they are thick, closely and coarsely transversely striated, and are longer than the head and thorax together, being as long as the antennæ. Petiole thick, transversely striated, and somewhat longer than the rest of the abdomen, which is strongly compressed, a little longer than broad, and, if anything, longer than the abdomen. Coxæ black, obscurely striated.

KAPALA.

Chirocerus, Brullé, Hist. Nat. des Ins., Hym. iv. p. 571 (non Latr.).

In this genus the antennæ are 11-jointed; the joints short, the third and fourth subequal, scarcely longer than the others; the joints of the flagellum in the male bear

long rami. The scutellum ends in two long curved processes, which reach to the apex of the abdomen. Petiole nearly as long as the abdomen. Metathorax without tubercles, and reticulated.

♂ —— 1. **Kapala furcata.** (Tab. V. figg. 17 & 17 *d*, ♀; 17 *a*, antenna ♀; 17 *b*, head; 17 *c*, antenna ♂.)

Eucharis furcata, Fabr. Syst. Piez. p. 158, ♀.
Eucharis flabellata, Fabr. *l. c.*, ♀; Walker, Entomologist, t. P. fig. 2.
Chirocerus furcatus, Brullé, Nat. Hist. des Ins., Hym. iv. p. 571, t. 38. fig. 5.

Hab. Costa Rica, Cache (*Rogers*); Guatemala, Cerro Zunil 4000 to 5000 feet, Coatepeque 1500 feet, San Isidro 1600 feet (*Champion*); Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).—South America.

Apparently a common species. Walker (List of Chalcididæ, p. 22) records it from Sierra Leone, Africa; but this is no doubt an error.

LOPHYROCERA.

In this genus the antennæ in the female are serrated; the joints are broader than long and of nearly equal size; the third joint is not much longer than the following, and is not so much produced above; the scape is not longer than the third and fourth together. In all, there are apparently ten joints; but possibly there may be more, as the last joint in the only specimen I have does not look like a terminal joint. The scutellum is large, broad at the base, narrowing towards the apex, which ends in two blunt teeth, and which are double as long as broad. The petiole is more than double as long as broad, and is shorter than the short abdomen. The metathorax immediately below the projecting scutellum projects into a blunt tooth-like process, which curves down to the sternum, forming a rib-like border on either side. In the male the antennæ are simple, the joints longer than broad, the third joint one half longer than the fourth.

The antennæ in this genus are serrated, as in *Schizaspidia*, but they are not quite identical otherwise; and in the males of the last genus they are flabellate. *Schizaspidia* had better be reserved for the Old-World species.

1. **Lophyrocera stramineipes.** (Tab. V. fig. 18, ♀; 18 *a*, antenna.)

Nigro-viridis; scapo antennarum pedibusque pallide testaceis; petiole abdomineque subtus et apice brunneo-testaceis; alis hyalinis, nervis albis.
Long. 4 millim.

Hab. Panama, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

The head is distinctly metallic bluish green, and bears below the antennæ a few waved transverse striations; the vertex is also striated, but the striations there run towards the mouth and are indistinct. Thorax covered with large deep punctures; the

breast is finely punctured. Abdomen smooth, shining, twice as broad, or rather high, as long; the ventral surface and the sides are obscure brownish testaceous.

2. **Lophyrocera nigromaculata.** (Tab. V. fig. 19, ♂; 19 *a*, metathorax; 19 *b*, scutellum.)

Brunneo-testacea; capite maculisque thoracis nigris; petiole et pedibus flavo-testaceis; alis hyalinis.
Long. $5\frac{1}{2}$ millim.

Hab. NICARAGUA, Chontales (*Janson*).

The vertex is longitudinally and the face transversely striated. From each antenna a broad and deep groove runs to the clypeus; the head has a distinct border behind. Antennæ long and of nearly uniform thickness; scape very short, being scarcely double the length of the ring; third joint double the length of the fourth. Thorax, and the sternum and mesopleuræ to near the top, covered with large and deep punctures. Two longish, large, disk-shaped marks over the posterior legs, a mark in front of the mesonotum, two large marks behind this uniting in the centre, a roundish small mark outside of them, and touching them at their apex a somewhat triangular mark (which is prolonged as a broad line to the end of the scutellum, where it becomes broad), all black; the lower side of the metanotum is also black. The scutellum ends at the apex in two blunt teeth, which are twice as long as broad. The metapleuræ bear five or six large longitudinal striations, and at the side project into large blunt processes. Petiole long and slender, longer than the hind femora. On the back the abdomen is obscure black, and the rest of it is browner and darker in tint than the thorax.

ORASEMA.

Antennæ 13-jointed, longish; third and fourth joints subequal. Scutellum simple, a transverse groove at the apex. Metathorax without tubercles. Petiole thickish, cylindrical, three times longer than broad.

The ovipositor (which is not exserted) is quite remarkable for its size and breadth, the spiculæ being as broad as in *Cephus* and many other sawflies. The borer is toothed or indented at the apex (fig. 18 *c*), and the support becomes dilated towards the apical part, the apex itself, however, being sharply pointed, much sharper than the borer (fig. 18 *e*). The maxillary and labial palpi are both three-jointed, the middle joint being in both cases the shortest (figs. 18, 18 *a*).

In its simple scutellum this genus agrees with *Psilogaster* and with some of the species of *Stilbula* (if *S. volusus*, Walker, is to be regarded as a *Stilbula*, for the typical species has the scutellum bifid); but from *S. volusus* it differs in its simple antennæ in the male. The ovipositor is stronger built and broader than in any other genus of Chalcididæ known to me.

The only species known was found by Mr. Champion on fallen timber near the holes of xylophagous beetles.

1. **Orasema stramineipes.** (Tab. V. figg. 20, 20 *a*, ♀; 20 *b*, scutellum; 20 *c*, antenna: Tab. VI. figg. 18, 18 *a*, *b*, trophi; 18 *c*, *d*, *e*, ovipositor.)

Nigra; scapo antennarum pedibusque flavis; alis hyalinis, nervis pallidis.
Long. fere 5 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ slender, nearly as long as the thorax, densely covered with depressed hair; third joint a little longer than fourth. Head closely punctured all over. Antennal groove moderately broad, dilated suddenly at the bottom. A narrow furrow, slightly curved in the middle, runs down from each of the antennæ, then curves round the clypeus to the base of the mandibles, which are testaceous. Clypeus somewhat triangular, transverse at the apex. The furrow is deepest round the clypeus. Thorax more strongly punctured than the head, the lower and posterior portion of the pleuræ striated. A narrow transverse furrow runs across from the tegulæ, and from this two much broader sutures proceed to the pronotum, thus dividing the mesonotum into two somewhat triangular lateral areas and a larger area in front. From the centre of the transverse furrow a short broad longitudinal one runs to the scutellum. Metanotum coarsely rugose, almost reticulated in the centre; there is a central area bordered by keels which converge sharply at the top. Petiole rugose-punctured, thick, shorter than ventral surface of the abdomen. Coxæ blackish or greenish, closely punctured. Abdomen not laterally compressed, triangular as seen laterally, dilated at the apex.

Subfam. *TORYMINÆ*.

This group contains some of the most elegant forms among the Chalcididæ. All or nearly all have the ovipositor long, and are parasites on Gall-flies, Aculeate Hymenoptera, or Lepidoptera. The group is very numerous in species, especially in temperate climates; but little is known about the tropical species.

DIOMORUS.

Diomorus, Walker, Ent. Mag. ii. p. 159 (1834); Mayr, Verh. z.-b. Ges. Wien, xxiv. p. 73.

This is a genus of small extent, only two European species being known. They are parasites on the Aculeate Hymenoptera living in bramble-stems.

1. **Diomorus rufipes.**

Viridis, cupreo variegatus; scapo pedibusque rufis; antennarum flagello nigro, subtus testaceo; alis hyalinis.
Long. 3 millim.

Hab. GUATEMALA, Cerro Zunil 4000 to 5000 feet (*Champion*).

The mesonotum, metanotum, and head are for the most part of a golden coppery tint; the apex of the abdomen is also coppery. The scape is narrow compared to the

flagellum, and curved. The flagellum is not much longer than the head in front, thick, becoming gradually thicker towards the apex, which is acute and compressed at the side; the fourth, fifth, and sixth joints are subequal, and a little longer than the succeeding. The face between and below the antennæ is distinctly keeled. Head, pronotum, and mesonotum covered with large and deep punctures, which are distinctly separated; the basal two thirds of the scutellum is covered with similar punctures, but more widely separated; the apical third is very finely and minutely punctured. Metanotum finely punctured. Pleuræ smooth, shining, the edges with scattered punctures. The coxæ are closely punctured, much stronger than the apex of scutellum. Abdomen smooth, shining, impunctate. The posterior femora are thickened, about one third longer than broad; the middle beneath has a large oval indentation, the edges of which are very slightly acute, giving the appearance of being toothed. The tibiæ are thick, especially towards the apex, and curved. The long spur of the thick calcaria is nearly as long as the metatarsus, which is not much longer than the second joint. The tibiæ are fuscous on the outer side.

2. **Diomorus mayri.** (Tab. IV. figg. 17, ♀; 17 *a*, *b*, trophi.)

Viridis; scapo antennarum, tegulis, geniculis tibiisque testaceis; tarsis albidis, antennis nigris, terebra quam corpus longiore; alis hyalinis; thorace dense punctata; ♂ tibiis posticis fuscis, basi et apice testaceis.

Long. 4–5 millim., terebra 5–6 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

The face is coppery-tinted, and covered with a scattered longish white silvery hair. The scape reaches to the ocelli, which are placed in a curved line. The annellus is longer than broad, the apex scarcely transverse; the third joint is a little longer and thinner than the fourth, the others very slightly shorter, the last conical. Head coarsely punctured, except the front in the middle below the ocelli, which is very finely punctured and coppery-tinted. Thorax covered with large, deep, distinctly separated punctures. Apical third of the scutellum very finely punctured, the basal part punctured like the mesonotum, the two kinds of punctuation being separated by a transverse line. The middle of the pleuræ is smooth, shining, and impunctate; the rest and the breast finely punctured. The metanotum is smooth, shining, impunctate. The abdomen is compressed, oblong, shining, impunctate, the last segments coppery.

The coxæ and femora are minutely punctured; posterior femora moderately thick, and with an indistinct tooth at the apical third. The calcaria is short, not one fourth of the length of the metatarsus. Wings clear hyaline; the costæ glabrous. The male has the antennæ thicker.

Bred by Mr. Champion from the galls of *Cynips guatemalensis*.

SYNTOMASPIS.

Syntomaspis, Foerster, Hymen. Stud. ii. p. 43.

A genus of small extent, chiefly distinguished from *Diomorus* by the absence of teeth from the posterior femora, and from *Torymus* by the scutellum having a transverse line a little past the middle. The species are parasites on gall-flies.

1. Syntomaspis maculipennis.

Æneo-viridis; flagello antennarum nigro; geniculis, apice tibiarum tarsisque flavo-testaceis.
Long. $4\frac{1}{2}$ millim., terebra fere 4 millim.

Hab. Mexico, North Sonora (*Morrison*).

Head and thorax (except the pleuræ behind, where they are smooth, shining, impunctate, and of a bluish tint) strongly and closely punctured. Scutellum behind the transverse line much finer and closer punctured than it is in front of it. Front excavated above the antennæ in the middle; the face coppery. Antennæ rather slender, the flagellum getting thicker towards the apex; its third joint longer than fourth, the apical compressed. Scape thin, cylindrical, reaching to the lower ocellus. Annellus longer than broad, thicker and rounded at the apex. Abdomen smooth, shining, coppery. Coxæ rather strongly, femora obscurely, punctured. The coxæ are coppery; femora black, with a slight coppery tint. The posterior tibiæ are black, except at base and apex; the anterior are for the greater part testaceous in front, coppery behind. The tarsi are of a clear yellow, except that the apices of the joints of the posterior tarsi are fuscous; the long spur of the calcaria reaches a little beyond the middle. The ovipositor is as long as the body. Wings clearly hyaline; humerus testaceous; ulna and cubitus blackish, at the latter is a fuscous fascia. The posterior edge of the basal segment of the abdomen incised. As with most of the species, the coppery tints are irregularly distributed over the body.

The present species differs from most of the European in having the scutellum finely punctured behind the transverse line, that part being generally shining and impunctate.

Subfam. *EURYTOMINÆ.*

This subfamily is distinguished by having the body not metallic, the prothorax large, acute laterally, quadrate, the antennæ with not more than eleven joints, and the abdomen compressed and convex above.

The species are parasites on gall-insects of various orders, so far as is known.

EURYTOMA.

Eurytoma, Illiger, Fauna Etr. ii. p. 127.

This genus is a common one in the Palæarctic and Nearctic Regions. We now add three new species from Central America; two of these (*E. aurifrons* and *E. argentata*)

have the apical abdominal segments lengthened out into a short tail, which clasps the ovipositor; they have the petiole very short, and the joints of the club of the antennæ are, in most specimens, completely amalgamated. The other (*E. petioliventris*) has a long petiole, and the abdomen semioval and very strongly compressed, much more so than in any other species I have seen.

E. aurifrons was found by Mr. Champion near the holes of beetles in a tree.

1. **Eurytoma aurifrons.** (Tab. V. figg. 11, ♀; 11 *a*, mandible; 11 *b*, abdomen laterally; 11 *c*, antenna; 11 *d*, labium; 11 *e*, ovipositor.)

Nigra; antennis pedibusque rufis; alis hyalinis; antennis 8-articulatis.
Long. 5–7 millim.

Hab. GUATEMALA, Pantaleon (*Champion*).

The head and thorax are coarsely and closely punctured all over (except on the posterior part of the mesopleuræ, which is much less coarsely punctured), and covered with a golden pile, long on the face, pleuræ, and metanotum, short on the rest. The scape of the antennæ is a little longer than the two following joints together, the third is a little shorter than the two following, which are subequal, the sixth a little shorter than they, the seventh is shorter, the last double the length of the seventh, conical; the joints become gradually thicker towards the apex. Legs covered with a silvery pubescence; posterior coxæ finely punctured, and covered with short white hair. The metanotum is slightly hollowed and very minutely punctured.

2. **Eurytoma argentata.**

Nigra; scapo, coxis anterioribus, trochanteribus femoribusque rufis; tibiis tarsisque albidis; antennis 9-articulatis; alis hyalinis.
Long. 5–6 millim.

Hab. GUATEMALA, Pantaleon (*Champion*).

Differs from *E. aurifrons* in being smaller; in the antennæ being nine-jointed, a little longer, and in not being so much thickened towards the apex, in being more pilose, and the last joint a little longer than the seventh, which is a little longer than the eighth. The pleuræ are less pilose, as is also the metathorax; the four anterior coxæ are red, and the tibiæ and tarsi white. The male has, as usual, the antennæ longer and thinner, and covered with long depressed hairs. The abdomen has a long petiole, and the second segment has a large suture at the base. In both sexes the hair on the thorax is silvery. The middle of the mesopleuræ is hollow, very minutely punctured, and without hair.

3. **Eurytoma petioliventris.** (Tab. V. fig. 12, ♀.)

Nigra; capite et thorace profunde punctatis, abdomine compresso; tibiarum apice tarsisque albidis; alis hyalinis.
Long. 3–4 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ as long as the head and thorax, moderately thick, becoming gradually and slightly thicker towards the apex, covered sparsely with hairs, which are depressed and directed towards the apex; the scape is not much longer than the second and third joints together; the second less than one half of the length of the third; the third is a little longer than the fourth, and a little shorter and thinner than the fifth; sixth shorter than the seventh; the eighth longer than the latter, compressed, and with no trace of segmentation. The head and thorax are covered sparsely with short glistening white hairs, except on the vertex and pronotum; the mesopleuræ and mesocoxæ are finely and closely punctured. Abdomen shorter than the thorax, oval, and very strongly compressed. The ovipositor projects a little, issuing from the middle of the abdomen. Wings glabrous at the border; nervures pallid testaceous.

BEPHRATA.

Antennæ 9-jointed, filiform; the joints longish, tapering towards the apex; scape short, of the length of the ring and the next joint; ring distinct, ovoid; first joint of flagellum a little longer than next, the others subequal; they are situated high on the front, which is deeply excavated between them and the ocelli. Ocelli in a curve. Eyes bare; the head projects but little behind them. Prothorax large, quadrate, compressed at the sides. Thorax much longer than broad. Scutellum large. Abdomen strongly compressed laterally; second segment one half longer than the next, which is shorter than the fourth; the fifth is longer than the fourth. Ovipositor concealed; last ventral segment deeply incised. Legs simple; posterior femora a little enlarged, the spurs minute. Costal branch one half of the length of the ulna; cubitus half the length of the costal branch. The costal nervure in the posterior wings is well developed.

In the strongly punctured thorax this genus agrees with *Eurytoma*; but the structure of the antennæ (in the joints being longer and thinner, and in the last not forming a club) and of the abdomen is very different. The marginal branch of the ulna is much longer. In the long strongly compressed abdomen it departs from the other Eurytomids entirely.

1. **Bephrata ruficollis.** (Tab. V. figg. 13, ♀; 13 *a*, antenna.)

Rufa; antennarum articulis 6°–9ᵐ, meso- metathorace abdominisque dorso nigris; alis fere hyalinis.
Long. 6–7 millim.

Hab. PANAMA, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

The head is punctured, more strongly on the top; the antennal grooves smooth, shining. Thorax coarsely punctured. Mesopleura smooth, scarcely punctured, a deep striated oblique groove in the centre. Head and thorax covered with a white glistening

pubescence. Abdomen longer than the head and thorax, strongly compressed laterally, the last ventral segment deeply incised. Except at the base, the wings are fuscous-yellow in tint.

Subfam. *SPALANGIINÆ*.

This division is of small extent, only three genera being known, and these contain but a limited number of species.

SPALANGIA.

Spalangia, Latr. Hist. Nat. des Crust. et des Ins. xiii. p. 228.

Species of this genus are known from the Palæarctic Region and North America, while one of the European species has been recorded from the Galapagos Islands and another from the Sandwich Islands. As the species, so far as is known, are parasitic on the house-fly, they have no doubt been introduced there. The species are very closely allied, and difficult to separate specifically, owing to their being so uniform in coloration and markings.

1. **Spalangia chontalensis.** (Tab. V. figg. 14, ♀; 14 *a*, antenna.)

Nigra, pilosa; tarsis testaceis; alis hyalinis.
Long. 2–3 millim.

Hab. NICARAGUA, Chontales (*Janson*).

Antennæ 10-jointed; the second joint one fourth longer than the third, the third and fourth are longer than broad, the fifth to ninth are not much longer than broad, the tenth is nearly as long as the three preceding together. The head and thorax are covered with a sparse pubescence and with shallow punctures. The centre of the mesonotum is shining, smooth; scutellum alutaceous, and with a longitudinal furrow in the middle. The metanotum, pleura, and sternum are smooth and shining for the most part. Abdomen smooth, shining, impunctate, shorter than the thorax; the last segment acute; the apical segments are covered with a pale pubescence.

PARALÆSTHIA.

Head elongated, broad, produced in front into a spear-head process, the apex of which is blunt, and at its base produced into a blunt tooth-like process. Eyes small, oval, situated on the sides. Vertex with a wide and deep furrow extending from behind the ocelli to the antennæ and carinated in the middle, the keel running down to the centre. Mandibles very large, three fourths of the length of the head, curved, bidentate. Antennæ 10-jointed, clavate, situated a little below the middle of the head; scape

shorter than the first two joints of the flagellum, the first joint shorter than the second, fourth and fifth shorter and thicker; the rest become thickened towards the apex. Prothorax large, a little broader than long, distinctly separated from the mesothorax, the sides scarcely straight, transverse behind, rounded and narrowed in front. Mesonotum rather flat above, the scutellum not clearly defined. Metanotum comparatively large, closely amalgamated with the mesonotum. Petiole long, curved, broader at the base than at the apex, round. Abdomen ovoid, flat, contracted before and behind; second segment longer than the next, fourth much longer than any of the others; apical a little shorter than the third. Ulna shorter than the marginal branch, (which is prolonged a little beyond the cubitus); at its junction with the ulna is a thickened spot of hairs; the marginal branch is provided with projecting hairs; the margins of the wings with long cilia. Coxæ large, thickened, widely separated; femora stout; tarsi longer than the tibiæ.

The female has a stout laterally compressed ovipositor, which is about half the length of the abdomen. The head over the mouth is broadly incised, the edges of the incision being tooth-like; the front below the antennæ is produced into a broad keel, which overhangs the mouth-region, terminating in a blunt thick tooth.

The affinities of this genus are clearly with *Theocolax*, Westw., with which it agrees in the structure of the thorax and abdomen and of the wings; but the enormous development of the mandibles, the very deep and long suture on the head, and the greater development of the basal abdominal segments sufficiently differentiate the two.

1. **Paralæsthia mandibularis.** (Tab. V. figg. 15, ♀; 15 *a*, ♂; 15 *b*, head of ♂; 15 *c*, antenna of ♀; 15 *c*, antenna of ♂; 15 *f*, head of ♀.)

Nigra, nitida, fere glabra; ore, scapo antennarum tarsisque testaceis; geniculis, trochanteribus tibiisque piceis; alis hyalinis, fascia substigmatali fusca.

Long. 4 millim.

Hab. Panama, Volcan de Atitlan 2500 to 3500 feet (*Champion*).

Antennæ not much longer than the head and mandibles. Sides and upper part of pleuræ slightly punctured and semiopaque; the rest very smooth, glossy, shining, and piceous; the sides of the head and prothorax are also piceous. The tibiæ are closely covered with a fuscous pile. The scutellum laterally are faintly longitudinally striated. Metanotum shining in the centre, obscurely punctured and semiopaque at the sides.

Subfam. *AXIMINÆ*.

Antennæ 13-jointed, inserted in the middle of the face. Prothorax large, not transverse in front. Head with the front produced into large irregular horn-like tubercles. Metapectus armed with spine-like tubercles. Petiole armed beneath with a curved spine.

Second segment of abdomen longer than all the others together. Four anterior tibiæ with one minute spur; posterior curved, terminating in a stout curved spine. Posterior coxæ elongated; posterior femora thickened, minutely toothed. Body metallic.

The form of the head would ally this subfamily to *Dirrhinus*, Dal., a genus which is placed by authors in the Chalcidina; but the South-American genus can scarcely be placed there, unless the characters given by European authors to define the Chalcidina are much extended. The *Aximinæ*, in fact, differ from that group in the body being metallic, the prothorax much more strongly developed (it being constructed very much as in *Eurytoma*), and the ovipositor is as long as the abdomen. In the structure of the posterior legs it agrees with the Chalcidina, but the thickened femora and the strongly spined tibiæ are not peculiar to them. The only other group that it could be placed in is the Pteromalina; but the form of the head and prothorax is quite different.

HONTALIA.

Antennæ 13-jointed, inserted below the eyes; second joint a little shorter than third. Head longer than broad, triangularly incised behind, above the antennæ deeply excavated, produced at the sides into two large tubercles, of which the uppermost is the largest; they are sharply pointed, and the space between them is semicircular. Mouth almost touching the anterior coxæ. Ocelli in a triangle. Eyes almost round, margined. Prothorax large, transverse behind, produced in the middle in front so as to fit into the incision in the head; distinctly separated from the mesothorax. Mesonotum with two sutures, and a transverse one at the base of the scutellum, which is oval and slightly raised, and not separated by sutures from the mesonotum. Metathorax flat, longer than broad, with distinct keels. In front of the posterior coxæ the sternum is produced, on each side, into a blunt tooth. Petiole a little shorter than the metathorax, carinated beneath, armed with a curved thick spine. Abdomen fusiform, second segment longer than the succeeding together; the rest subequal. Ovipositor broad, compressed, a little shorter than the abdomen. Posterior coxæ large, a little longer than the femora, which are thicker, oval, a little longer than broad, and bluntly keeled on the lower side, where there is also a blunt tooth at the base. Tibiæ curved, a large thick curved spur at the apex; anterior apparently without spurs. Middle femora thickened at the apex. Ulna straight, produced along the costa; cubitus a mere thickening of the nerve. The metatarsus is shorter than the second joint, it being not much longer than the third; the apical is the longest, and is thickened towards the apex. Ocelli in a triangle. The mouth, when the head is not raised, touches the prosternum. The horns on the head are directed straight in front.

The genus *Axima*, Walker, from Brazil, comes nearest to *Hontalia* of the described genera, but is sufficiently distinguished from it by the eleven-jointed antennæ and simple posterior femora.

1. **Hontalia cærulea.** (Tab. VI. fig. 1, ♀; 1 *a*, head from the side.)

Cærulea; antennis nigris, tarsis, femoribus tibiisque anterioribus rufo-testaceis; alis hyalinis (♀).
Long. 7–8 millim., terebra 4 millim.

Hab. NICARAGUA, Chontales (*Janson*).

Head and thorax minutely pilose, covered with large, roundish, distinctly separated punctures; the mesonotum in front and a longitudinal narrow line on scutellum smooth, shining, impunctate. A large oblique space on the mesopleura impunctate, finely striated, more strongly at the extreme apex; posterior coxæ obliquely striated, punctured at the base. Metanotum finely punctured, and with six keels. Petiole alutaceous, with four keels. Ovipositor covered with short white hairs at the apex. Antennæ as long as the thorax, covered with a microscopic down; the joints not clearly separated, becoming gradually thicker towards the apex, which is conical. The anterior femora and tibiæ are darkened towards the middle.

2. **Hontalia ruficornis.** (Tab. VI. fig. 2, ♀; 2 *a*, antenna; 2 *b*, head; 2 *c*, abdomen.)

Nigra; antennis, femoribus tibiisque anterioribus rufis; tarsis pallide testaceis; alis fumatis, albo fasciatis.
Long. 4–5 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ a little shorter than the thorax, thickened towards the apex, where the joints become also shorter; second joint a very little shorter than the third. Scape not reaching the top of the tubercles. Frontal tubercles large, broad, projecting above the eyes and in front; the upper part is sharply pointed, behind it curves down on either side to near the middle, the sides being margined and enclosing a slightly hollow space; from the middle it descends gradually to the vertex; in front its slope is more perpendicular, and towards the middle of the eyes it curves out into a tooth, from this descending with a slight inward curve to the base of the antennæ. On each side of the mouth the head projects into a blunt tooth. The head (especially in front) is coarsely punctured, and covered with a short silvery pubescence. In front the pronotum is smooth, shining, impunctate, at the sides obscurely punctured; above coarsely punctured, except a broad, smooth, shining, impunctate transverse band. Mesonotum and scutellum coarsely punctured; in the front of the former is a narrow, shining, transverse furrow. Pleuræ coarsely punctured, except a hollow space below the tegulæ, which is finely striated. In the centre of the metanotum is a large area, truncated behind, rounded in front, where it ends a little beyond the middle, and from its apex there runs a straight keel to the petiole. On either side of this is a similar field, but sharper-pointed at the apex, and from their apices a keel runs also to the petiole. Outside these keels, and close to the edge, is a keel which runs round the border of the metanotum; at its basal third the metathorax projects into a blunt tooth. The

inside of these fields is punctured. The metasternum is hollowed on either side, carinated in the centre, and finely striated. The petiole is a little longer than broad; on each side is a keel close to the edge, which is itself margined; in the centre are two narrower keels, enclosing a punctured space; the portion enclosed by the lateral central keels is smooth; at the end of these keels is a transverse furrow. On the lower side of the petiole is a curved spine; the second abdominal segment is much larger than all the succeeding together; the three following are of equal size, the next larger, the following smaller but larger than the third. The anterior coxæ are coarsely punctured on the outer side, posterior finely punctured and striated. The posterior femora are finely punctured; beneath they are very finely and closely toothed, the teeth only being visible with a strong glass; at the base is a very indistinct tooth. At the end of the stigma is a round white spot, and there is another opposite it; there is a long narrow white stripe along the costa, and the base is more or less hyaline.

I think this is a male; but I am not quite sure, as the apical abdominal segments are retracted. If a female it would differ from *H. cærulea* (which I have regarded as the type of the genus) in having the ovipositor retracted.

Subfam. *EUPELMINÆ*.

This subfamily possesses a well-marked peculiarity in the strongly dilated middle tarsi and in the large stout spurs on the same legs. In the possession of a large, stout spur on the middle tibiæ the Encyrtidæ agree with them, but differ otherwise in the disk of the mesothorax being bordered, and in the mesothorax not being contracted before the scutellum.

Comparatively few species have been described; they are principally from the Nearctic Region; but species are known from Australia, the Sandwich Islands, North and South America. The European species have been referred to six or seven genera, mostly separated from each other by slight differences in the form of the legs, head, and the manner in which the antennæ are inserted. To arrange the Central-American species in the same lines would require the creation of several new divisions. I have only done this in three cases; for with the limited material at my command (all of the species being represented by one sex only, and mostly by single specimens) I experience considerable difficulty in deciding as to what characters are of generic value, a difficulty increased by the fact that such characters which, on first examination, might be regarded as useful in generic separation, are found to merge into mere specific differences when traced through several species. A revision of the genera of Neotropical Eupelmina must therefore be deferred until the accession of more complete material shall enable us to come to more definite ideas as to the limits of the genera.

EUPELMUS.

Eupelmus, Dalman, Kongl. Vet. Acad. Handl. ii. p. 378 (1820).

In having the front ridged near the insertion of the antennæ the species I have included here do not agree with one of the principal characters given by Foerster (Hymen. Stud. ii. p. 31) to define *Eupelmus*, and none of them have the second abdominal segment incised. They, however, agree tolerably well with *Eupelmus* generally. The species are mostly black, more or less tinted with metallic green; the wings dark with hyaline fasciæ. It is difficult to count the number of joints in the antennæ, so closely are they united together; but the majority would appear to have them eleven-jointed. Possibly there may be three joints in the club.

I have divided the genus into sections, which may hereafter be raised into genera.

I. *Antennæ with the scape strongly compressed laterally, with a knife-like edge on the lower side, where it is much thinner than on the back. Antennal grooves short, broad. Ocelli not touching the groove. Flagellum thick, compressed, densely pilose, first joint a little longer than the next, the others subequal; there are eleven joints in all. Thorax raised into a sharp ridge on the back. Ovipositor scarcely projecting. Abdomen somewhat depressed in the centre above, longer than the head and thorax together.*

1. **Eupelmus compressicornis.** (Tab. VI. fig. 12, ♀.)

Nigro-viridis, pilosus; antennis nigris; pedibus testaceis fusco maculatis; alis subfumatis.
Long. 4 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

The antennæ are shorter than the thorax and abdomen, thick, compressed, covered with a close pile, and they taper in thickness towards the apex; the joints (except the first of the flagellum) are broader than long; the first of the flagellum is a little longer than the succeeding, and is narrower at the base than at the apex. The head is punctured, and covered with a short pale pubescence. The thorax is uniformly alutaceous, almost punctured. The abdomen, except at the apex, is smooth, shining, impunctate; the apex is covered with shallow punctures. The spur on the middle leg is two thirds of the length of the basal joint of the tarsus. The head is green, somewhat coppery on the front; thorax dull black; apex of the abdomen green, the rest bluish black; the wing-nervures are yellowish testaceous; the femora, tibiæ, and tarsi are suffused with fuscous.

II. *Antennæ twelve-jointed. Scape compressed, sharp on the lower side; first joint of the flagellum (after the ring, which is longer than broad) much longer than the second, which is a little shorter than the third; the rest become shorter and thicker towards the apex. Grooves of the antennæ broad, short, forming a hollow above the antennæ, not reaching near the ocelli; vertex a little depressed at the eyes, which are oval and reach to the extreme back of the head and project beyond it laterally. Front before the antennæ bluntly keeled. Thorax flat above; the centre of the mesonotum somewhat depressed. Ovipositor very slightly projecting.*

2. **Eupelmus gigas.** (Tab. VI. fig. 9, ♀; 9 *a*, antenna.)

Niger, viridi et cupreo tinctis; flagello antennarum (apice excepto) pedibusque rufis; alis fumatis, albo fasciatis.

Long. fere 9 millim.

Hab. Panama, Bugaba (*Champion*).

Antennæ situated a little above the antennal scape, strongly compressed laterally, dilated and hollowed at the side, double as long as broad. Flagellum thick, becoming thicker towards the apex, densely covered with a white pile. Head punctured, pilose. Antennal grooves proper short, broad, ridged on the outer side, converging above into a hollow, which does not reach near to the ocelli. Eyes converging at the top, projecting beyond the back of the head, which is margined on the outer side; the eyes project above the vertex. Prothorax small. Mesonotum flattish, not raised above the scutellum, centre depressed, with a triangular raised part at the base, the depression bordered with a margin, indistinct at the base, clearly defined towards the scutellum; on the outside of the mesonotum are two narrow keels, one on the top, the other a little way down the side and running into the tegulæ; there is a transverse, rather wide, groove in front of the scutellum. Metanotum with two wide grooves enclosing a slightly raised part in its centre, and which is widest at the apex. Mesopleura in front covered with longish white hair, this part being more projecting than the larger hind portion, which is more opaque, and bears only a microscopic pubescence. Abdomen longer than the head and thorax together, smooth, shining, more or less coppery, the apex with a few round obscure punctures, and bearing (as do also the sides) a few longish hairs. Ovipositor shortly projecting, the sheath densely pilose. The coxæ are black, more or less green at the base, and covered with a longish hair; the rest of the legs are densely covered with a close pale pile; the posterior femora above, the middle tibiæ and hind tarsi at the apex, more or less fuscous at the base on the lower side and at the apex. The fore wings are obscure hyaline, more or less infuscated; and in front of the cubitus, and close to the margin, is a longish hyaline space; the hind wings are lightly infuscated.

The largest of the species known to me.

III. *Scape of antennæ cylindrical, flagellum becoming gradually thicker from the base towards the apex. Antennal grooves reaching close to the ocelli, but very shallow on upper half. Pronotum triangular above, flat, with a deep groove in the middle. Mesonotum flat or ridged. Abdomen convex above and beneath, the sides a little compressed. Ovipositor retracted. Wings abbreviated. Body testaceous.*

3. **Eupelmus testaceus.** (Tab. VI. fig. 10, ♀; 10 *a*, antenna.)

Rufo-testaceus; apice antennarum nigro, abdominis basi alba, capite cupreo variegato; alis fusco-brunneis, albo fasciatis.
Long. 6–7 millim.

Hab. Panama, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

Antennæ almost bare, and becoming thickened towards the apex; the third and fourth joints subequal. Head finely and closely rugose, rust-coloured, except in the centre, which is blackish. The mouth-region is greenish black. Eyes chocolate. Head sparsely pilose. Thorax smooth, shining, and covered with a black pubescence. The prothorax above is longer than broad, obsoletely punctured, and with a longitudinal furrow in the centre of the pronotum, which is flat. The mesonotum is light testaceous, impunctate; the scutellum and metanotum reddish testaceous and minutely punctured, especially the metanotum, which is flat, and bears a well-marked keel in the centre. Pleuræ finely punctured, black along the edges, reddish testaceous for the rest. Abdomen a little longer than the thorax; the basal third smooth, shining, the rest finely punctured; the greater part of the second segment is white. The wings are scarcely longer than the thorax; they are brownish; in front of the middle is a white band, which extends right across; there is a small white mark (longer than broad) at the cubitus close to the costa; these white parts are surrounded with a fuscous border, and the apex of the wing is also fuscous.

4. **Eupelmus brevipennis.**

Rufo-testaceus; capite cupreo, antennarum apice, abdominis basi, coxis femoribusque nigro-maculatis; alis fumatis, basi hyalinis.
Long. $4\frac{1}{2}$ millim.

Hab. Panama, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

The head is coppery, as in *E. testaceus*, and otherwise agrees with that of the latter, but the antennæ are somewhat shorter. In the form of the prothorax the only difference is that in *E. brevipennis* it is quite flat, this being also the case with the mesonotum. The metanotum is shorter, and there is no distinct central keel. The abdomen is shorter than the thorax. Thorax very finely punctured. Abdomen smooth, shining. The four posterior coxæ are largely marked with black; the posterior femora are broadly lined with the same colour above; the base of the abdomen is longer, black; and there is an obscure white ring on the second segment. The wings are narrow, shorter than the mesothorax; the basal half is hyaline, the apical brownish.

IV. *Eyes bare, head scarcely projecting behind them. Antennæ inserted in the middle of the face. Antennal grooves distinctly ridged, narrow. Head retreating behind the eyes. Antennal scape narrow, of nearly equal thickness throughout. Pronotum hollow above, a longitudinal suture in the centre. Scutellum narrow at the base. Abdomen narrow at the base, becoming dilated towards the apex; second and third segments longer than the others. Ovipositor hidden, or exserted. Middle tarsi dilated, setose on the underside. The mesonotum flat or elevated into a hump.*

Antennæ 11-jointed, inserted in the middle of the face; two rings, the first longer than the second, broader at the apex than at the base, second ring a little longer than broad; first joint of the flagellum longer than the next, second and third subequal, longer than the fourth, which is of the same size as the fifth; the joints of the club indistinct, its apex acute. Head large, broader than the thorax, slightly convex behind, still more slightly concave in front. Eyes bare, oval; ocelli in a curved line. Front slightly hollow; there is no antennal suture. Prothorax transverse, small, the sides rounded. Mesonotum with the sutures well defined. In front of the scutellum is an almost straight transverse carina; base of scutellum broad, truncated; apex rounded, broader than the base. Abdomen long, semisessile, tapering towards the apex, which is often cylindrical; the segments do not differ much in length. Legs slender. Spurs on front tibiæ almost obsolete; on the middle long, stout; on the posterior short, and two in number. Marginal branch three fourths of the length of the ulna. The following table is a synopsis of the species of Group IV.:—

1 (16). Mesonotum elevated into a ridge.
2 (11). Wings smoky, with white fasciæ; legs mostly black.
3 (4). Antennæ entirely testaceous . . . . . *testaceicornis.*
4 (3). Antennæ for the most part black.
5 (8). Base of abdomen black; scape of antennæ black, thick, compressed, sharp on the lower side.
6 (7). Wings hyaline at the base, with a small fuscous spot in the centre of the hyaline part; middle of the flagellum testaceous; spurs black *geniculatus.*
7 (6). Base of the wings entirely hyaline; antennæ entirely black; spurs white . . . . . *albispina.*
8 (5). Base of the abdomen white; scape testaceous, cylindrical, not compressed.
9 (10). Wings with two white spots in middle, hyaline at the base . . . *bimaculatus.*
10 (9). Wings with only a narrow curved fascia in the middle; base smoky . *gracilis.*
11 (2). Wings hyaline; legs testaceous.
12 (13). Thorax mostly red . . . . . *erythrothorax.*
13 (12). Thorax black.
14 (15). Ovipositor as long as the abdomen; legs testaceous . . . . . *hyalinipennis.*
15 (14). Ovipositor but very shortly projecting; legs yellow . . . . . *flavipes.*

16 (1). Mesonotum flat, not elevated.
17 (18). Wings with two fasciæ in the middle . . . . . *petiolaris.*
18 (17). Wings with only one curved fascia in the middle.
19 (20). Upperside of the base of the abdomen white; sheath of the ovipositor black . . . . . *cingulatus.*
20 (19). Upperside of the base of the abdomen black; sheath of the ovipositor testaceous . . . . . *fasciiventris.*

5. **Eupelmus testaceicornis.**

Niger, viridi et cupreo tinctus; antennis (apice excepto), geniculis, tibiis tarsisque anticis et terebra testaceis; alis fumatis, basi et apice hyalinis.
Long. 5 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ as long as the thorax and abdomen together; scape thin, becoming a little thicker towards the apex; flagellum becoming gradually thickened towards the apex, last joint compressed laterally. Head closely punctured, metallic, covered with a close white pile; antennæ placed below the level of the eyes; antennal grooves deep, the triangular space which they enclose is depressed in the centre. Thorax obscurely punctured, covered with a white depressed pubescence, except on the mesopleura, which is almost glabrous, and less shining than the rest. The mesothorax rises into a sharp elevation, with a steep slope on the scutellar side. Abdomen narrow at the base, broad and rounded at the apex; base smooth, shining; apex opaque, pilose, and pitted with round shallow punctures; the second segment has a slight incision in the centre above; it is longer than the third, which is double the length of the fourth. Ovipositor shortly projecting, the sheath thick, three fourths of the length of the last segment. The thorax has more green tints than the abdomen, which is almost entirely black. Legs longish, densely pilose.

The slightly incised second abdominal segment would place this species in *Lutnes*; but I cannot detect any trace of pilosity on the eyes.

6. **Eupelmus geniculatus.**

Niger; antennarum flagello medio, scapo apice terebraque testaceis; pedibus posterioribus basi geniculisque albis; alis anticis fumatis, albo maculatis.
Long. 4 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

The head, thorax, and apical half of the abdomen are alutaceous, and covered with a white pubescence, that on the head short and close, on the thorax longer and more scattered, on the abdomen still longer and thinner, especially at the apex. The mesopleuræ above in front finely punctured, and with a coppery tint; below, close to the breast, smooth and shining. Mesonotum margined throughout, the centre hollow, slightly carinated in the centre. The tibiæ and tarsi are covered with a close pubes-

cence, the femora with a longish white hair; the anterior knees are only slightly marked with white, the four posterior broadly at the base of the tibiæ and the apex of the femora; the base of four posterior coxæ black. The antennæ are pilose, subclavate, thick, not much longer than the abdomen; the scape is compressed on the lower side, broad, rounded at either end, the side double the width of the back; the scape at the top testaceous, as is also the apex of the fifth and sixth to the eighth joints; the third joint is scarcely one half of the length of the fourth, which is about one half longer than the fifth; the latter is not much longer than the sixth, and is thinner than it; the seventh to the ninth are not much longer than broad, the club shorter than the three preceding, compressed at the sides. The base of the wings is mostly hyaline, and in the middle of this clear portion is a somewhat square mark touching the ulna; at the end of the ulna is a larger fuscous mark, broad above, narrowed below; in front of the cubitus is a broad, triangular (looked at from the apex of the wing) cloud, which stretches from one side of the wing to the other, its sharp end pointing to the base of the wing, and almost running into the hyaline space at the base; the nervures are bright testaceous, except where touched by the fuscous portions of the wings.

7. **Eupelmus albispina.**

Niger, pilosus, subnitidus; tarsis terebraque testaceis; pedibus posterioribus basi, tibiarum posticis dimidio basali calcaribusque albis; alis fumatis, albo maculatis.
Long. 4–5 millim., terebra 1 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Head minutely punctured, the thorax alutaceous, except the pleuræ; abdomen smooth, shining, and with a steel-blue tint. The middle spurs are as long as half the metatarsus; the posterior tarsi are testaceous only at the base. The base of the fore wings is almost hyaline, and in front of the cubitus is an oblique narrow hyaline stripe.

8. **Eupelmus bimaculatus.**

Hab. PANAMA, Bugaba (*Champion*).

Similar to *E. petiolaris* in the coloration of the body and legs, but differing from that species in the following points:—The antennal grooves are deeper, and their outer margin is more distinctly keeled, being separated from the eyes by a slight groove; the mesothorax, instead of being almost flat, rises sharply to a peak to the base of the scutellum, which has an almost perpendicular slope. The abdomen broadens out continuously from the base, which does not form a neck. The basal joint of the middle tarsus is thinner, and the long spur is as long as it, and quite black; not shorter than it, and testaceous, as in *E. petiolaris*. The base of the flagellum is testaceous (but of a darker shade than the scape), while in *E. petiolaris* it is only piceous.

9. **Eupelmus gracilis.**

Niger; antennarum scapo tarsisque anterioribus testaceis; abdominis basi alba; alis fumatis, bifasciatis.
Long. 4 millim.

Hab. GUATEMALA, Mirandilla 1700 feet (*Champion*).

Head covered in front with a white pubescence; mesonotum with shorter, almost fuscous pubescence; the legs with a microscopic down; apex of abdomen with moderately long fuscous hair. The head is alutaceous, finely punctured; mesonotum alutaceous, pleuræ half shining, faintly alutaceous. Abdomen smooth, shining. The antennæ are a little longer than the head and thorax; scape curved; flagellum rather thin to the middle, where it gradually thickens towards the point; the two last joints form a distinct flattened club; the joints are covered with a pale microscopic pile. The anterior legs are fuscous black, posterior coxæ green. The ovipositor is one third of the length of the abdomen, black, the apex testaceous. The wings are shorter than the abdomen, and marked with an obscure white band before the ulna, and a larger, broader, curved one in front of the cubitus; the apices lighter in colour.

10. **Eupelmus erythrothorax.** (Tab. VI. fig. 11.)

Niger; pronoto purpureo, antennarum scapo, thorace pedibusque rufis; alis flavo-hyalinis.
Long. 6 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ a little shorter than the abdomen, moderately stout, becoming gradually thickened towards the apex; scape curved; third joint scarcely one fourth shorter than the fourth and as long as the fifth; the fifth is shorter than the sixth, seventh and eighth shorter and not much longer than broad, ninth and tenth broader than long; club distinctly three-jointed. The head is alutaceous, finely pubescent, the front bluntly keeled. Thorax smooth, shining. Mesonotum margined at the sides all round; the middle hollowed throughout to the scutellum; a raised, long, triangular part at the base is continued as a narrow keel to near the end; the sides of the depression are not margined; outside the hollow the mesonotum has a blistered appearance. The metanotum and sternum are covered sparsely with longish white hairs. The abdomen is more than double the length of the thorax, incised beneath at the base, the ventral surface margined in the middle; the apex produced into a blunt point; the apical segments longer than the middle; the sixth semicircular at the apex, and not much longer than the apical. The back of the abdomen is black, the sides at the base and the base above greenish blue; the posterior coxæ are bluish.

11. **Eupelmus hyalinipennis.**

Niger; antennis nigris; pedibus intermediis totis, femoribus posticis apice, tibiis tarsisque testaceis; tibiis tarsisque anticis sordide testaceis; alis hyalinis.
Long. fere 5 millim.

Hab. GUATEMALA, Pantaleon 1700 feet (*Champion*).

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Head bright green, except behind the ocelli and round the mouth. Thorax black, variegated with green. The abdomen black, variegated with green and coppery tints, especially on the back; the mesopleuræ golden. Head covered with large round punctures; the vertex behind the ocelli alutaceous. The thorax finely alutaceous; abdomen smooth and shining; the pleuræ very finely punctured; breast alutaceous and with a minute irregular punctuation. The head, mesonotum, and breast covered with short, white, glistening hairs; the sides and apex of abdomen have a few scattered hairs. The antennæ and ovipositor almost glabrous; the scape of the antennæ has a greenish hue. The anterior tibiæ are more or less fuscous green above and beneath; the anterior and middle tarsi fuscous for the most part; the posterior coxæ and basal two thirds of the femora are green. The ovipositor is nearly as long as the abdomen and deep black.

12. **Eupelmus flavipes.**

Viridis; abdomine antennisque nigris; pedibus flavis, coxis femoribusque posticis fere totis nigris; alis hyalinis.
Long. 3 millim.

Hab. GUATEMALA, Mirandilla 1700 feet (*Champion*).

Head above smooth and shining, front and oral region finely punctured; face covered with a white pubescence. The thorax has a fine, almost obsolete punctuation; the mesonotum shining; pleuræ semiopaque and glabrous; the mesonotum and breast with a white pubescence; the base of the abdomen is shining, metallic, the apex opaque, obsoletely punctured. The pronotum curves downwards from the top towards the head, so that the centre is slightly hollow; it is margined at the top. The sides of the mesonotum are margined, but not very clearly; the centre is hollowed to the scutellum, where there is a distinct border; in front there is the usual raised triangular part with the keel behind. Abdomen longer than the head and thorax; the apex broadly rounded, but narrower than the middle; the last segment shorter than the preceding. The antennæ are pilose, thin to the middle, from that becoming gradually thickened; the third joint a litile longer than the fourth. The terebra is pilose and as long as the last segment above. The face, pleuræ, and the greater part of the abdomen are coppery black. The base of abdomen is brassy and bluish, and the mesonotum has the green more or less tinged with coppery tints.

13. **Eupelmus cingulatus.**

Niger; scapo antennarum, tarsis anterioribus femoribusque posterioribus apice testaceis; abdominis basi cingulo albo; alis fuscis, albo maculatis.
Long. 4–5 millim.

Hab. GUATEMALA, Pantaleon 1700 feet; PANAMA, Caldera 1200 feet (*Champion*).

Head, thorax, and abdomen (except at the base, which is smooth and shining) aluta-

ceous, and covered with short, white, depressed hairs, except on the posterior part of the mesopleuræ. The face is closely covered with white hairs; scutellum with a few long white hairs; and there are a few long hairs along the edge of the mesonotum. The apical abdominal segments are covered with long white hairs along the edges of the segments, beneath with black hairs. The legs are covered with a white pubescence. The mesonotum is margined along its whole extent, and with a V-shaped furrow; but there is no transverse furrow in front of the scutellum, which is depressed. The wings are subhyaline at base and apex; and there is a white band in front of the cubitus; this band does not stretch across the wings, and is broadest in front. The head, thorax (especially the metathorax), and base of abdomen have a steel-blue reflection.

14. **Eupelmus petiolaris.**

Hab. GUATEMALA, Pantaleon 1700 feet (*Champion*).

In general coloration this species agrees with *E. cingulatus*, but it is slightly shorter and narrower. The thorax is more shining, less alutaceous. The second abdominal segment is longer, narrower, double as long as broad, and distinctly separated from the rest of the abdomen by its narrowness, the apical part bulging out abruptly from it; it is entirely white, except a narrow black band in its middle. The apical portion of the abdomen is more shining than in *E. cingulatus*. The wings are not hyaline at the apex, and at the cubitus there are two white fasciæ, one on either side of the wing, that close to the cubitus itself being the largest. The knees, anterior tarsi, and lower side of the hind femora are obscure testaceous.

15. **Eupelmus fasciiventris.**

Niger; scapo antennarum, abdominis apice, terebra tarsisque rufo-testaceis; apice coxarum, abdominis basi subtus et femoribus posterioribus subtus albis; alis fumatis, albo fasciatis.

Long. 6 millim.

Hab. PANAMA, Bugaba (*Champion*).

Scape of antennæ longish, curved; flagellum becoming thickened gradually towards the apex; first joint (the ring) double as long as broad, second about one fourth longer than the third; all the joints covered with a close white pile. Head opaque, for the most part covered with a matted pubescence, punctured finely. Antennal grooves broad, comparatively shallow, not reaching to the ocelli.

Closely related to *E. cingulatus*, but the white on the second abdominal segment is only on the sides and beneath; the abdomen is longer compared to the thorax; the last segment longer, not so hairy, and more distinctly punctured; ovipositor longer, its sheath testaceous; the white band at the cubitus is, if any thing, narrower, whiter, and more clearly defined. The four posterior trochanters are white, as are also the base of the femora, which are more or less obscure testaceous on the lower side. The antennæ

are more pilose than they are in *E. cingulatus*, and not so much thickened towards the apex. The antennal grooves are wider and deeper.

BRASEMA.

Eyes hairy, converging at the top. Front hollow, and with a somewhat triangular projecting space above the antennæ; the hollow is scarcely ridged at the bottom. Head not dilated at all behind the eyes. Mesothorax raised into a peak, above the centre of which depressed. Mesonotum hollow in the centre; scutellum narrow at the base. Abdomen long, narrower than the thorax; segments two to six subequal, transverse; apical segment shorter and narrower. Ovipositor as long as the two last segments together. Middle tarsi dilated, setose beneath.

The short, not incised, second abdominal segment distinguishes this genus at once from *Lutnes*; the hairy eyes from *Eupelmus*.

1. **Brasema brevispina.**

Nigra; trochanteribus, coxis intermediis, geniculis, tibiis intermediis, posticis medio tarsisque testaceis; alis hyalinis.

Long. 4 millim., terebra fere 1 millim.

Hab. GUATEMALA, Pantaleon 1700 feet (*Champion*).

Head opaque, slightly punctured, the face covered with a white pile. Thorax alutaceous; pilose in front, behind, at the sides above, and on the sternum; pleuræ glabrous, finely punctured. The sides and apex of the abdomen are covered with a white pubescence; apex very minutely and sparsely punctured, almost opaque; the base more shining. Mesonotum distinctly margined all round, the border going round the scutellum; the centre deeply hollowed, the sides of the hollow having a well-defined border, which becomes better marked as it reaches the outer border at the scutellum; the centre of the hollow is raised into a somewhat triangular posture, which is prolonged behind into a narrow keel. On the thorax, above the fore wings, are two tubercles at the end of the central carina of the mesonotum and close to the end of it, one close to the carina, the other below it. The abdomen is narrower than the thorax, longer than the thorax and the head together, the centre depressed, the apex bluntly pointed; apex of the terebra testaceous. The antennæ are a little shorter than the abdomen, rather thin, becoming thicker towards the apex; the scape is curved, finely keeled on the lower side; the third joint is a little shorter than the fourth and nearly as long as the fifth, the fifth a little longer than the sixth.

LUTNES.

Eyes hairy, converging above. Antennæ inserted in the middle of the face. Front hollow below the ocelli, projecting between the antennæ, ridged on the lower side. Scutellum narrow at the base, almost pear-shaped. Abdomen subsessile; second

segment as long as all the others together, deeply incised at the apex; third segment incised; fourth also incised, but not deeply; fifth segment as long as the fourth, finely punctured. Ovipositor longer than half the abdomen. Spur on anterior tibiæ stout, curved, one third of the length of the metatarsus; that on the middle tibiæ two thirds of the length of the metatarsus, which is thickened and setose on the lower side, and with the second joint also thickened; posterior tibial spur almost obsolete. Wings hairy. Mesonotum with two carinæ along the middle, which is hollow. A suture separates the pleura from the sternum.

In *L. crassicornis* the mesothorax is flat along its entire extent, but in *L. dromedarius* it rises gradually from the pronotum to a peak, descending more abruptly on the other side, the scutellum thus not being on a level with the metanotum, but sharply raised above it. In other respects the species agree.

The hairy eyes ally this genus to *Caloseter* (from Europe) and *Solindenia* (from the Sandwich Islands). *Caloseter* has the female wingless, and the ovipositor is not exserted, while the scutellum is broad at the base, and the front is not ridged at the insertion of the antennæ, the middle tarsi too not being setose. *Solindenia* may be known from it by the second abdominal segment not being much longer than the third, and transverse at the apex; the eyes are larger, and project more behind, and there is a wide furrow over the mouth.

Synopsis of Species.

1 (4). Thorax elevated into a peak above.
2 (3). Middle of flagellum testaceous; ovipositor more than one half the length of abdomen . . . . . *ornaticornis.*
3 (2). Flagellum entirely black; ovipositor not half the length of the abdomen . . . . . *dromedarius.*
4 (1). Thorax flat above.
5 (6). Flagellum with a testaceous ring in the middle; abdomen distinctly longer than the head and thorax together; ovipositor not one half the length of the abdomen . . . . . *longiventris.*
6 (5). Flagellum entirely black; abdomen not much longer than the head and thorax together; ovipositor more than half the length of the abdomen . . . . . *crassicornis.*

1. **Lutnes ornaticornis.** (Tab. VI. figg. 16, 16 *a*.)

Niger; antennarum basi et articulis 8°–10^{m} abdominisque basi testaceis; geniculis albidis; alis fuscis, albo maculatis. ♀.
Long. 5–6 millim.

Hab. Panama, Volcan de Chiriqui 4000–6000 feet (*Champion*).

The head, thorax, and apical half of abdomen are alutaceous; the head (slightly), the thorax in front of the scutellum, and the apex of the abdomen are covered with small, glistening, white, distinctly separated hairs; over the second and third pair of coxæ is a

thick tuft of white hair; the legs are covered with a sparse white glistening pubescence; and the underside of the abdomen at the apex is sparsely covered with moderately long black hairs. In front of the scutellum is a deep transverse furrow. The mesothorax is distinctly margined in front (the margin extending to the middle); roundly angled in front, and wider than the prothorax. The mesonotum bears no sutures in front of the scutellum, except an almost obsolete hollow on either side in front. The scape at the base and apex is black. The middle and posterior trochanters, the apices of the posterior coxæ, and the mark on the middle of the intermediate tibiæ beneath are testaceous. The breast in front of the middle legs is dirty testaceous, but I am not certain if this is natural. All the calcaria are black; the fore knees are only slightly white. The fore wings are subhyaline at the base; in front of the cubitus is a curved, narrow, hyaline band, and opposite this is a broader and shorter band; the apices are almost bare, and lighter coloured than the middle. The hind wings at the base bear a few long feather-like hairs; the apices shortly fringed. Ovipositor short, thick, testaceous. The scape may be entirely black or testaceous; and the number and position of the testaceous joints of the flagellum vary—sometimes it is the eighth to tenth, in other specimens the fourth to sixth.

2. **Lutnes dromedarius.**

Niger; tarsis anterioribus terebraque testaceis, geniculis trochanteribusque posterioribus albidis; alis fuscis, albo fasciatis.

Long. 5–6 millim., terebra 1½ millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ of the length of the abdomen, thick, clavate at the apex, the last joint obliquely truncated, the joints not clearly separated, covered with a close, white down. Head, thorax, and apex of the abdomen alutaceous; rest of abdomen smooth, shining, glabrous; apex of the abdomen, head, and thorax covered with a close, white down; mesopleura scarcely pilose; apex of abdomen on lower side covered with long white hair; the pronotum carries a tuft of long black hairs; legs covered with a microscopic pile. At the commencement of the ulna (but not touching it) is a curved band proceeding in the direction of the apex of the wing; at the cubitus is a broader and shorter cloud proceeding in the direction of the first.

3. **Lutnes crassicornis.** (Tab. VI. fig. 15, ♀.)

Niger; tarsis anticis terebraque testaceis, femoribus posterioribus basi, coxarum posticis apice geniculisque posterioribus albis; alis fumatis, albo maculatis.

Long. 6 millim., terebra fere 2 millim.

Hab. PANAMA, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

The antennæ, head, thorax, sides, and apex of abdomen are covered with a white pubescence, which is longest on the apex of the abdomen; the apex of the antennæ

and mesopleura almost glabrous; the pronotum bears a few long, stiff, bristle-like hairs; the pubescence on the mesonotum in front is fuscous. Head and thorax alutaceous, opaque. The mesopleura shining, finely punctured, and variegated with blue and green metallic tints. In front of the scutellum is a deep transverse furrow; from this runs, along the outer side of the mesonotum, a curved carina to the prothorax, becoming united with the suture, which separates the latter from the mesonotum. Outside this is another carina which issues from the tegulæ, and which joins the prothorax on the side at the middle; and from the transverse furrow run two carinæ along the middle, which become obsolete before reaching the pronotum. The centre of the mesonotum is hollow, but not very deeply; in the centre of the hollow is an almost obsolete carina.

4. **Lutnes longiventris.**

Niger; coxarum posterioribus apice, trochanteribus posterioribus et basi tibiarum posticarum albis.
Long. 5 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Scape of antennæ broad, compressed to a sharp edge on lower side; flagellum stout, swelling gradually towards the apex; the apices of the third and the fourth joints obscure, white on the outside. Mesonotum flat, considerably depressed in the centre, the depressed part with an obscure blunt ridge in the middle. Head and thorax opaque, alutaceous, covered with a short pubescence. Abdomen smooth, shining at the base, the apex pilose and less shining; sheath of terebra nearly half the length of the abdomen. Spurs testaceous, the long one on the middle tibiæ scarcely two thirds of the length of the basal joint of the tarsus; apices of the four posterior tarsi testaceous. Wings smoky; the base and apices, and a curved narrow fascia in the middle, hyaline.

Comes nearest to *L. crassicornis*, but smaller; the centre of the mesonotum much more hollowed, the sheath of the ovipositor shorter and testaceous, the wings are lighter in tint, and the scape is much thicker and more compressed laterally.

ASEIRBA.

Antennæ inserted in the middle of the face, 10-jointed, of nearly uniform thickness. Head broad, concave behind, convex in front. Eyes large, the head not projecting behind them; ocelli in a triangle. Front projecting a little between the antennæ; there are no antennal grooves, nor are there sutures on the vertex. Prothorax small. Mesothorax large. Mesonotum without sutures; on the side, a little below, a carina runs straight from the pronotum nearly to the tegulæ, where it curves up and runs straight across the mesonotum to join a similar carina on other side. There is another carina behind it and in front of the scutellum, which is ovoid, broad at the

base, and becoming narrowed and rounded behind, the apex projecting a little over the metanotum. At the base of the metanotum and beneath the overhanging part of the scutellum is a transverse carina, and from near the centre of this runs on each side a curved keel to the side behind the posterior wings. The metathorax slopes down from the scutellum, so that the thorax is much higher than the abdomen. At the apex of the metathorax is a small round arc, separated from the following portion of the abdomen by a white membraneous space, like the "blotch" of the Tenthredinidæ; this no doubt representing the first abdominal segment, the abdomen being completely sessile. The segment behind it is very large and slightly rounded at the apex; the base being incised by the large semicircular blotch. The rest of the abdomen tapers towards the apex; it is a little longer than the basal portion, and bears no trace of being composed of more than one segment; on the lower side, laterally, it is deeply incised, and from the upper part projects the ovipositor. The ovipositor is nearly as long as the abdomen; it is straight, broad, compressed laterally, and resembles the sheath of the Tenthredinidæ. Legs stout, tibiæ slightly compressed. Anterior and posterior spurs very minute, and seemingly single. Middle tibiæ with one large, stout spur, longer than the basal joint of the tarsus, and one short, stumpy one. Middle tarsi stout, thick, and setose on the lower side. There is no marginal branch in the wings; the cubitus is straight.

The remarkable structure of the abdomen distinguishes this genus at once.

1. **Aseirba caudata.** (Tab. VI. fig. 13.)

Nigro-cærulea; flagello antennarum caudaque nigris, pedibus sordide testaceis, coxis et femoribus posticis cæruleis, femoribus tibiisque anterioribus proparte fuscis; alis hyalinis.

Long. (cum terebra) fere 4 millim.

Hab. GUATEMALA, Torola 1600 feet (*Champion*).

The antennæ are longer than the head and thorax together, very slightly thickened towards the middle, and covered with a fine pubescence; the first joint of the flagellum is not much more than half the length of the succeeding, which is the longest; the others become gradually (and slightly) shorter, and the apex is attenuated. The head and mesonotum are semiopaque, and covered with a close, white, moderately long pubescence. The sides of the pronotum and pleuræ are very minutely punctured. Abdomen smooth, shining, and sparsely pubescent; the ovipositor densely pilose, opaque; the head is covered with round, widely separated punctures. All the tarsi, the tibiæ at the apex, and the knees broadly, are dull testaceous; the anterior femora are for the most part fuscous, tinged with blue; the posterior femora are blue, except at the extreme base and apex; the coxæ are bluish black; the rest of the legs fuscous. The sides of the head and pronotum are blue; the rest of the head and thorax is black tinged with blue. The scutellum and abdomen are coppery.

Subfam. *PTEROMALINÆ.*

I use this name in the old sense as defined by Walker (List of Chalcidæ) and Brullé.

EPISTENIA.

Epistenia, Westwood, in Griffith's Animal Kingdom, Ins. ii. p. 432, t. 77.

A widely distributed genus over the warmer regions of the globe. *Lycisca*, Spinola, does not apparently differ to any great extent from it.

1. **Epistenia balteata.** (Tab. VI. fig. 3, ♀; 3 *a*, labium and labial palpi; mandible.)

Cyaneo-viridis, nigro et purpureo maculata; pedibus rufis, coxis subtus femoribusque posterioribus subtus viridibus; antennis nigris, scapo viridi; alis hyalinis, fusco maculatis.

Long. 16–18 millim., cauda 5–6 millim., ♂ 12 millim.

Hab. GUATEMALA, San Gerónimo, Teleman, Panzos and El Reposo 800 feet (*Champion*).

Antennæ not much longer than the thorax; flagellum thick, becoming gradually thicker towards the apex; second joint scarcely shorter than the third, thinner than the latter, especially at the base, where it is more or less green; the following joints are much shorter, the fourth is a little longer than the fifth, the last is one half longer than the preceding. Head as broad as the thorax; face coarsely punctured; the vertex and the posterior region less strongly punctured; the antennal depression smooth, shining, impunctate. Face covered with a short, thick, white pubescence; vertex with shorter black pubescence. Thorax coarsely rugose; the pleuræ and breast less strongly punctured. Scutellum rounded and projecting behind, and with a distinct margin. Four basal segments of abdomen finely punctured; cauda as long as the three preceding segments, pilose. Coxæ punctured at the sides and beneath; the posterior pair with a broad depression at the side, the depression usually reddish or purplish in colour. The pronotum in the middle, the greater part of the mesonotum, the abdominal segments at the apex, and the cauda are more or less black or purplish black. The posterior femora either green or purplish beneath, and the tibiæ red, or more or less purplish. The wings are short, not much longer than the head, thorax, and basal segment of abdomen; at the base of the ulna, and touching the costa, is a fuscous mark, which is a little broader than long; at the termination of the cubitus there is a narrow curved fuscous line, which is continued nearly to the apex of the wing; at the lower part of the wing, opposite the ulna, is a fuscous cloud, narrow and long in shape.

The male has the legs purple, through which the red appears in scattered small spots; on the inner side of the anterior femora are two irregular white spots. The coloration of the rest of the body in the male is pretty much as in the female; the marks on the fore wings are longer than in the female.

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2. **Epistenia maculipes.** (Tab. VI. fig. 4, ♀; 4 *a*, antenna; 4 *b*, fore leg; 4 *c*, maxilla and maxillary palpus.)

Nigro-viridis; antennis nigris; pedibus rufis, coxis nigris, tibiis tarsisque posterioribus fuscis; alis hyalinis, fusco maculatis.

Long. 9 millim.

Hab. Panama, Bugaba (*Champion*).

Head finely, thorax coarsely, punctured; pleuræ finely punctured, smooth and shining at the top. Antennal grooves less strongly punctured and less metallic than the vertex. Head and thorax closely covered with a pale down. Abdomen alutaceous, covered with a pale pubescence at the sides and apex. The apex of the pronotum, a stripe across the mesonotum at the tegulæ, the upperside of the pleuræ, and the sides of the metanotum are green. The legs are covered with a pale, longish pubescence. The coxæ are punctured. The apices of the posterior tibiæ are not fuscous, the same parts of middle tibiæ paler; the hind femora are black at their apices laterally. All the parts of the legs tend to become more or less fuscous; the apices of the coxæ, and the trochanters, are usually white. At the base and apex the abdomen is smooth and shining, the rest finely and closely punctured; the segmental divisions, however, being smooth and shining; the base and middle are dark blackish purple, the apex golden. The male does not differ in coloration.

Differs from *E. balteata* in the thorax being much more closely and finely punctured, in the longer prothorax and metathorax, and much shorter ovipositor, the latter scarcely longer than the second segment, while in *E. balteata* it is nearly as long as the abdomen itself. The size of the fuscous fasciæ on the wings varies.

3. **Epistenia rufipes.**

Viridis; terebra flagelloque antennarum nigris, pedibus tegulisque rufis; alis subfumatis, nervis sordide testaceis.

Long. 8 millim.

Hab. Panama, Bugaba (*Champion*).

Head and thorax coarsely punctured all over, the punctuation on face finer, the latter sparsely covered with longish white hairs. Prothorax short, subtransverse. Scutellum with a distinct border behind its apex; the border forming a tooth, which projects over the metanotum. Abdomen not much longer than head and thorax together; the base, a narrow band in the middle, and the apical half blackish purple; the middle punctured, base and apex smooth, shining. Ovipositor but shortly projecting.

AMOTURA.

Antennæ 10-jointed, situated not far from the mouth. Scape three fourths of the length of the flagellum, compressed and dilated at the apex, the dilated portion forming a broad knife-like keel. First joint of flagellum cylindrical, longer than any of the

others, nearly as long as the second and third together ; the joints thicker and shorter towards the apex, which is obliquely truncated; the penultimate joint not half the size of the preceding; the apical apparently composed of two joints, and as long as the two preceding together; if composed of two there will be thus eleven joints in all. Antennal grooves deep; below each antenna there is a sharp, thin carina issuing from the outer border of the grooves. Eyes large, hairy; the head scarcely projecting behind them; the two upper ocelli in a line, the lower ocellus at some distance below them. Prothorax small above, more strongly developed laterally; the sides straight, very slightly hollowed. Lateral sutures on mesonotum distinct. Scutellum large, broad in front, narrower behind, where there is a well-defined margin a little way down. Metathorax small; its spiracles large and oval. Second abdominal segment occupying nearly half of the entire extent of the ventral surface; third small, fourth double its length, fifth a little longer than fourth, and with a large round spiracle at its fore margin. The ovipositor extends beyond the tip of the abdomen, and originates quite close to the base. Four anterior tibiæ each with one large, stout, curved spur; posterior tibiæ with none. Posterior femora enlarged, toothed; posterior coxæ large, thick, hollow in the centre on their outer sides; posterior tibiæ thick, curved. Claws simple. Costal branch of fore wings one third of the length of the ulna.

In the form of the head, antennæ, and thorax this genus does not differ much from *Epistenia*, but it differs from it markedly in the structure of the ovipositor and in the very different posterior legs.

1. **Amotura annulicornis.** (Tab. VI. fig. 6, ♀; 6 *a*, hind leg; 6 *b*, maxilla and maxillary palpus; 6 *c*, labrum and labial palpi from beneath.)

Viridis, cupreo tincta; flagello antennarum, tibiis tarsisque nigro-purpureis; antennarum medio, tibiis tarsorumque basi albidis; alis hyalinis, medio infumatis.

Long. fere 7 millim.

Hab. NICARAGUA, Chontales (*Janson*).

The antennæ gradually thickened towards the apex; the flagellum about one third longer than the scape. Head coarsely punctured, especially between the antennæ; the antennal grooves very finely punctured; in front and at the sides the head is covered with long white pubescence. The mesonotum with the scutellum coarsely punctured. Pronotum less coarsely punctured. Mesopleuræ finely punctured above, behind (broadly) smooth, shining, impunctate. The breast very finely and irregularly punctured. The metanotum irregularly punctured. Metapleuræ coarsely punctured. The abdomen smooth, shining, impunctate. The mesonotum and pleuræ marked with golden or coppery splashes; the abdomen above purple. Pleuræ, coxæ, and sides of abdomen covered with longish white hairs. On the anterior tibiæ the white is scarcely visible, on the middle pair it is much broader; on the hinder pair the extreme base is black, followed by a moderately broad white ring. The metatarsus and the next joint are white in all the tarsi. The posterior coxæ are very finely punc-

tured, except the hollow in the centre on the outside, which is very faintly striated. On the underside the posterior femora are closely beset with teeth all over. The smoky fascia on the wings is placed upon the cubitus, where it is narrow, but becomes much broader and more diffused towards the sides. The costa is covered with long, black hairs.

LELAPS.

Lelaps, Haliday, Trans. Ent. Soc. iii. p. 292; Walker, Trans. Ent. Soc. 1862, p. 389.

A species of this genus is known from the Galapagos Islands, another from St. Vincent Isle [West Indies], and some have been described from Brazil.

1. **Lelaps albipes.** (Tab. VI. fig. 8, ♀.)

Cuprea; abdomine nigro; antennis nigris, albo cinctis; pedibus albidis, femorum medio fusco; terebra rufa, apice nigro; alis hyalinis, fusco maculatis.
Long. fere 7 millim. (cum terebra).

Hab. PANAMA, Bugaba (*Champion*).

Antennæ as long as the thorax and abdomen, shortly and densely pilose, gradually thickened towards the apex; second joint about one half of the length of the fourth, third nearly as long as the fourth and fifth together, fourth a little longer than the fifth, which is longer than the sixth, eighth shorter than the seventh and longer than ninth; tenth a very little longer than following, last longer than eleventh; scape beneath, the three apical joints, the apex of the third, and the base of the fourth white. Head finely striated; front and face carinated; clypeus smooth, shining, not striated; on the top are some (seven or eight) long, stiff, black hairs. Ocelli in a curve. Eyes large, oval. Prothorax finely striated, the sides rounded; pleuræ smooth, shining, striated behind above. Mesonotum in front of the wings transversely and finely rugose striate, behind them longitudinally striated. Scutellum flat; behind it is a suture which goes right across; a little behind this is another transverse carina; the part immediately in front of this is smooth and shining; before this smooth part the surface is coarsely reticulated, as is also the rest of the metathorax. Behind the second transverse carina, and in the centre, there is a raised semioval carina, and the field which it encloses has a carina in the middle. The pleuræ are smooth and shining immediately below the wings and over the middle legs; the rest, and the sternum, finely and closely punctured. The petiole is short, ringed in the centre, the ring reticulated, very finely striated at the apex, and curved beneath. The pronotum has a few long, stiff hairs, and there are three rows (of three or four each) of hairs on the mesonotum. Abdomen smooth, shining; third segment with two or three long, stiff hairs; apex beneath pilose; second segment above scarcely so long as the succeeding together. Terebra longer than the abdomen, pilose. Posterior coxæ finely and transversely striated behind; their extreme bases black; middle coxæ, the apices excepted, black. The costa at base bears long,

stiff hairs, the rest pilose. The centre of the fore wings is broadly fuscous, and this fuscous band bifurcates beyond the cubitus into two, both of which touch the edge of the wing, one at either side. Before the point where the band splits the wing is white.

2. **Lelaps ferruginea.** (Tab. VI. fig. 7, ♀ ; 7*a*, antenna.)

Ferruginea; antennarum articulis 7°–9ᵐ nigris, coxis anticis et posticis genubusque albidis, tarsis pallidis; alis fumatis, albo maculatis.
Long. 7 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ as long as the fore wings, becoming gradually thicker towards the apex, shortly and closely pilose; second joint about one third of the length of third, which is a little longer than the fourth and fifth together; the fifth is a little shorter than the fourth; sixth shorter than fifth, and longer than seventh; seventh and eighth subequal; ninth shorter than eighth and longer than tenth, which is as long as the eleventh; twelfth shorter than the preceding joint, from which it can scarcely be distinguished, so closely are they united. Head rugosely striated; face below the antennæ smooth, shining, very slightly projecting. Thorax above rugose, transversely striated before the wings, longitudinally striated behind them. Pleuræ beneath and sternum striated. Metanotum coarsely reticulated. Behind the border of the scutellum is a waved carina enclosing a reticulated space; behind this again is a straight carina, which encloses a smooth space; behind this again is a curved raised carina, which projects in the centre, and from this runs a carina down the middle of the metanotum to the apex; a short carina runs to the second transverse carina, dividing the field into two parts. Petiole short, thick, ringed in the centre, behind the ring reticulated, before it smooth, shining. Abdomen smooth, shining, blackish in the middle, the apex acute; terebra very shortly projecting. The face has a whitish pubescence, and on the vertex are some long, stiff, black hairs; there are also some long, stiff, black hairs on the pronotum, and in front of the wings on the mesonotum, and one or two on the third, fourth, and fifth abdominal segments. The hind coxæ are striated behind; the four anterior trochanters are blackish; the anterior femora (especially) and the tibiæ are suffused with black; the tibiæ and tarsi are closely pilose. The bases of the fore wings are fuscous; at the base of the ulna is a narrow fuscous cloud; behind the cubitus they are fuscous, but between this and the above-mentioned narrow cloud they are white, the wide part being much wider at the costa than at the middle; in front of the cubitus is a broad white band, succeeded by a faint fuscous cloud, which extends to the apex; the posterior wings are hyaline; the base of the costa bears a few stiff hairs.

3. **Lelaps tibialis.**

Sordide ferruginea; antennarum apice, coxis anticis et posticis abdominisque apice albidis; tarsis pallidis, trochanteribus anterioribus et tibiarum posticarum dimidio apicali nigris; alis fuscis. albo maculatis.
Long. 4 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ short, thick, becoming gradually thicker towards the apex, almost glabrous; second joint as long as the fourth; third as long as the fourth and fifth together, these with the sixth subequal; seventh a little shorter; ninth longer than the eighth or tenth; last shorter than the preceding joint, and not clearly separated from it; the scape reddish, the flagellum dark ferruginous, becoming lighter in tint towards the apex. Head a little broader than the thorax, finely rugose; thorax above finely and closely rugose; pronotum margined behind, broadly rounded and projecting behind, narrower in front, and separated from the mesonotum by a ridge. Scutellum rounded behind, a little projecting, the sides in front hollowed and striated. Mesonotum reticulated, the transverse carina produced into a sharp spine in the middle. Pleuræ striated. Petiole much longer than broad, about one half of the length of the posterior coxæ; a distinct ring at the basal third. Abdomen smooth, shining, ovate, the apex acute, not forming a "cauda;" second segment longer than all the others together; the middle segments more or less blackish; ovipositor scarcely projecting, the tip black. There are some bristles on the head, pronotum, and mesonotum; the head and mesonotum covered with a white depressed pile. The wings at the base are irregularly clouded at the commencement of the ulna, there is a cloud at the cubitus and a smaller one on the opposite side, and the apex is hyaline, the rest fuscous.

PRIONOPELMA.

Prionopelma, Westwood, Proc. Zool. Soc. 1835, p. 51.

With the exception of one from Zululand all the recorded species of this genus are from South America.

1. **Prionopelma pilipes.** (Tab. VI. fig. 5, ♀; 5*a*, labium and labial palpi; 5 *b*, maxilla.)

Viridis; antennis, tibiis, tarsis terebraque nigris; terebra quam corpus duplo longiore.
Long. 11 millim., terebra 24 millim.

Hab. NICARAGUA, Chontales (*Janson*).

Antennæ nearly as long as the body; the scape sharply compressed on the lower side, curved, and with a short pedicel as long as the third joint at the base; the second joint is twice as long as broad, narrow at the base, becoming gradually thicker towards the apex, which is obliquely truncated; third joint longer than the fourth, which is much longer than the fifth; the rest get gradually shorter; the last conical, oblique; the basal joints are compressed, the apical less so, but still not cylindrical. The face is covered with white pubescence; the front below the antennæ depressed, hollow. The head, mesonotum, pleuræ in front, and breast finely punctured. Mesopleuræ shining, obscurely striated, this portion being separated from the rest by a groove, which originates near the tegulæ, goes round in front, curves round and

proceeds above the sternum to the middle coxæ. The mesonotum has a scattered fuscous pubescence; the breast with shorter, closer, and paler pubescence; the coxæ (especially the posterior) on the lower side with dense long woolly hair; the rest of the legs bear a short scattered pale pubescence. The femora are green on the outside, internally violet-black; the anterior tarsi fuscous. The head and thorax are marked with violet and purple tints.

NOTE.—The following subfamily has been omitted from its place. It should have followed the genus *Orasema* on p. 105:—

Subfam. *PERILAMPINÆ.*

This is a group of small extent, but has representatives in most parts of the world—in America, Europe, in the Oriental Region, in South Africa, and Australia.

EUPERILAMPUS.

Euperilampus, Walker, Notes on Chalcidæ, p. 67.

This genus only differs from *Perilampus* in the "scutellum extending hindward and forming a long stout spine," while the scutellum of *Perilampus* is not elongated. It contains at present only one species.

1. Euperilampus gloriosus.

Perilampus gloriosus, Walker, Trans. Ent. Soc. 1862, p. 375[1].

Hab. MEXICO[1].

Fam. ICHNEUMONIDÆ.

The species of this large family have been very little collected or studied beyond Europe and North America. The exotic species have been altogether neglected, and if they are as numerously represented in the warmer regions of the globe as they are in the temperate an immense amount of work has yet to be done before our knowledge of the tropical Ichneumonidæ will be on a level with what is known of the European or North-American forms.

Our present systems of classification have been based entirely on European species. So far as the division of the species into families is concerned the systems of Wesmael and Holmgren appear to be natural enough, and it is generally possible to place the tropical species in them without rearranging the definitions given by the above-mentioned authors; but, so far as my experience goes, the definitions of the subgroups are quite inadequate. For example, the Ichneumonides Oxypygi, and Ichneumonides Amblypygi, of Wesmael are suitable enough for European species; but we find so many gradations in the form of the abdomen among the Central-American species that it becomes impossible to say whether a particular species is referable to the first or the second

of these groups. I have therefore not adopted any divisions of lower than subfamily rank.

Subfam. *ICHNEUMONIDÆ.*

This subfamily has been divided into four subgroups by the Belgian entomologist Wesmael *—into the Ichneumonides Oxypygi, the Ichneumonides Amblypygi, the Ichneumonides Platyuri, and the Ichneumonides Pneustici. So far as I am aware no representative of the last group has been discovered in our range. The other three are represented; but I have come to the conclusion that there is no absolute distinction between them, the characters on which they are founded merging into each other completely. And it is equally difficult to find characters to distinguish the genera *Ichneumon*, *Hoplismenus*, *Amblyteles*, and *Trogus*. We find great variation in all the parts of the body on which these genera have been based—in the antennæ, the head, the thorax and its scutellum, and the abdomen. There are, for example, all gradations from a flat scutellum up to one which is strongly dentiform and spinose. Cresson (Proc. Acad. Phil. 1873, p. 105) has come to the same conclusion, that it is impossible to define clearly a *Hoplismenus* from an *Ichneumon* (sensu str.). The genus *Ichneumon*, as here used, is practically equivalent to the Ichneumonides Oxypygi, and Ichneumonides Amblypygi, of European writers.

PATROCLUS.

Patroclus, Cresson, Proc. Acad. Phil. 1873, p. 104.

Cresson regards this as a subgenus of *Ichneumon* (as above defined); but the pectinate claws furnish such a good mark of distinction that it seems to me, especially seeing the difficulty there is experienced in differentiating *Ichneumon*, that it may well be raised to generic rank.

1. **Patroclus nigrocæruleus.** (Tab. VII. fig. 1, ♀.)

Ichneumon (*Patroclus*) *nigrocæruleus*, Cresson, Proc. Acad. Phil. 1873, p. 104[1].

Hab. MEXICO, Orizaba[1]; GUATEMALA, Zapote, Las Mercedes 3000 feet, summit of Volcan de Agua 12,400 feet (*Champion*).

2. **Patroclus lectus.**

Ichneumon lectus, Cresson, Trans. Am. Ent. Soc. ii. p. 18 [♂ & ♀][1].

Hab. MEXICO, Orizaba[1].

3. **Patroclus toltecus.**

Ichneumon toltecus, Cresson, Trans. Am. Ent. Soc. ii. p. 17 [♂ & ♀][1].

Hab. MEXICO, Orizaba[1].

* Tent. Disposit. Method. Ichneumon. Belgii, p. 11.

ICHNEUMON.

Ichneumon, Linnæus, Syst. Nat. ed. i. (1735); Wesmael, Nouv. Mém. Ac. Brux. 1844, p. 18.
Hoplismenus, Wesmael, *l. c.* p. 13.

The arrangement of the species of this genus is a work of great difficulty, and indeed cannot be effected in a satisfactory manner until a much larger number of species have been brought together for study. As already remarked, though we find great variation in the structure of the antennæ, thorax, and abdomen, yet these peculiarities merge gradually together, and thus the task of splitting up the genus into more or less clearly defined sections cannot be carried out as one would wish. Another difficulty lies in the fact that very many species are only known as males; and these, as a rule, do not afford such good characters for specific discrimination as do the females. Cresson experienced the same difficulty when dealing with the Mexican species *, and my task of systematically grouping them has been greatly increased by my having seen very few of this author's species. Under these circumstances I have thought it best to follow Cresson's arrangement, interpolating the numerous new species near those of this author to which, from the descriptions, I judged them to be most nearly related.

Ichneumon is a genus of world-wide distribution, and already contains several hundred species.

Scutellum flat, subconvex, or convex.

1. Ichneumon castor.

Niger; tibiis tarsisque fuscis; alis brunneis, stigmate fusco. ♀.
Long. 22 millim.

Hab. Costa Rica, Volcan de Irazu, 6000 to 7000 feet (*Rogers*).

Body covered with a short close fuscous pubescence. Antennæ as long as the abdomen and half the thorax, stout, a little flattened towards the apex, which is fuscous black. Head covered with large, but not very deep, punctures; clypeal foveæ large, deep; vertex raised in the centre, and separated from the eyes by a wide and deep depression, which is transversely reticulated; eyes clearly margined; an indistinct transverse furrow over the clypeal region. Thorax strongly and closely punctured; pleuræ longitudinally striated, the striations strongest on the lower halves. Scutellum not very much raised above the mesonotum, the centre flattish, broader at the base than at the apex, longer than broad, strongly punctured, the punctures running into each other and forming irregular reticulations. Postscutellum rugose. Upper median area of metanotum a little longer than broad, a little narrower towards the apex, closely rugose; all the areæ defined, reticulated; tubercles blunt; the apex with a semiperpendicular slope, straight, the middle not much hollowed. Petiole as long as, if not longer than, second segment, smooth, shining, keeled; the sides with broad perpen-

* *Cf.* Proc. Acad. Phil. 1873, p. 105.

dicular keels all over. Postpetiole raised in the middle, finely punctured, the apex of the depressed sides more strongly punctured; the base shining, with some scattered, large punctures. Abdomen finely and closely punctured, opaque, the apex acute, narrower at the second segment; gastrocœli large, deep, wider than long, the bottom reticulated, the sides very finely punctured. Legs long, covered with a dense fuscous pubescence; the tarsi bear some stiff bristles. Areolet angled, broad at the top, half the width at the bottom.

Differs from *I. pollux* in its fuscous wings, stigma, and tarsi; in the abdomen being narrower; in the upper median area of metanotum being broader than long, and not narrowed at the apex.

2. **Ichneumon pollux.**

Purpureus; antennis nigris; alis atro-violaceis. ♀.
Long. 26 millim.

Hab. Mexico, Orizaba (*Bilimek*).

Body very finely and closely punctured, semiopaque, velvety, covered with a close black pubescence. Scutellum not much elevated above the mesonotum, coarsely and closely punctured, narrower at the apex. Upper median area in metanotum longer than broad, the sides narrower and curved from where the lateral carinæ are received; the other areas clearly defined. Petiole smooth and shining, the apex depressed in the centre; postpetiole closely and rather strongly punctured. Abdomen broad in the centre, narrower at the base, more sharply pointed at the apex, the contraction being gradual from the middle; gastrocœli broader than long, large, not very deep, irregularly reticulated in the centre. Areolet 5-angled, broad at the top, half the width at the bottom.

The deep purplish-black, semiopaque, very finely and closely punctured, and velvety body of this species separates it from its allies.

3. **Ichneumon costaricensis.** (Tab. VII. fig. 3.)

Hab. Costa Rica, Volcan de Irazu 6000 to 7000 feet (*Rogers*).

In coloration this species differs from the preceding merely in the body being of a much brighter bluish tint, this being especially noticeable on the abdomen, which is more shining; it is a more slender and narrower insect; the punctuation is closer; the scutellum is broader, and not so much narrowed behind. The upper median area of metanotum is a little broader than long, and is not at all narrowed behind; the boundaries of the lower area are much more clearly indicated. The postscutellum is higher and with a much more distinct slope towards the second segment, and more closely and finely punctured than the scutellum. The gastrocœli are deeper and more shining, and the abdomen is narrower. There is no perceptible difference between the wings of the two.

The male has the inner orbits of the eyes from the clypeal foveæ, and the anterior knees, tibiæ, and tarsi, and the greater part of the middle tibiæ [all in front] yellowish white.

4. **Ichneumon astarte.** (Tab. VII. fig. 5.)

Niger; medio antennarum læte, palpis, tibiis tarsisque rufo-testaceis, orbitis oculorum flavis; apice tibiarum posticarum nigro; alis fuscis, stigmate testaceo. ♂.
Long. 23 millim.

Hab. GUATEMALA, Sabo in Vera Paz (*Champion*).

Finely and closely punctured all over, semiopaque; the punctuation on the pleuræ, if anything, closer and stronger. Head not buccate, slightly excavated above the antennæ; eyes projecting, reaching to the top of vertex. Scutellum elevated, the disc flat, retreating gradually to the postscutellum; a deep hollow at its base, this hollow having a distinct border with a carina on its upper part, and which extends to the pronotum past the tegulæ. Postscutellum projecting. The metanotum slopes very gradually to the lateral spines, then it has a more abrupt slope to the base of the abdomen. Metathoracic areas subobsolete, lateral spines blunt. Basal three fourths of petiole shining, hollow in the middle, and with shallow punctures on the basal half, the rest shagreened; at the point where the apex bends there is, on either side, an obscure tubercle. The edges of the second and third segments are piceous. Coxæ strongly, femora obscurely punctured; apices of trochanters piceous. Gastrocœli large, deep, broader than long, coarsely punctured at the edges, more finely punctured in the middle. The apices of the tarsi incline to piceous. Areolet 5-angled, much longer than broad.

5. **Ichneumon semiobscurus.**

Niger, punctulatus, opacus; palpis, geniculis, tibiis tarsisque luteis; alis fumatis.
Long. 16 millim.

Hab. GUATEMALA, Quezaltenango 7800 feet (*Champion*).

Head, thorax, and coxæ pilose; closely punctured all over. Abdomen less strongly punctured than thorax, but the punctures are closer, especially on the basal half Scutellum subconical, acute at apex, carinate at the sides, and with a large depressior at the base. Petiole shining, almost impunctate in the middle above, the centre raised and separated from the sides by an indistinct furrow; somewhat suddenly dilated at the apex, which is broad and a little curved. Gastrocœli large, deep, obscurely striated; the segments distinctly separated from each other. Metathorax gradually sloping behind. The wings are not altogether smoky, being suffused with small hyaline spaces; areolet moderately large, narrow above, the lateral nervures almost touching at the apex; nervures black. Below the antennæ there is, on each side, an obscure yellowish line touching the eyes. The labrum is piceous.

6. **Ichneumon bilimeki.** (Tab. VII. fig. 6.)

Niger; geniculis anterioribus, tibiis tarsisque flavo-testaceis, apice tibiarum posticarum nigris; alis flavo-fumatis, stigmate nervisque flavis. ♂.

Long. 15 millim.

Hab. Mexico (*Bilimek*).

Antennæ nearly as long as the thorax and abdomen together, stout, covered with a short close pile. Head closely and strongly punctured, the face not projecting, covered with a longish pubescence. Thorax closely and strongly punctured, semiopaque; the pleuræ more shining, and longitudinally striated in the middle. Scutellum flattish, not much raised above the mesonotum, and punctured like it. All the areas on metanotum distinct; the supramedian not much broader than long, the sides curved. All the thorax covered (but especially the disc) with a close pile. Petiole closely aciculated, more strongly and still more closely at the apex; the sides bordered. Gastrocœli longer than broad, deep, striated irregularly; the rest of abdomen closely punctured throughout, opaque, and covered with a close pile. Posterior coxæ strongly punctured, the four anterior coxæ less strongly so; trochanters finely, femora obscurely, punctured. Areolet 5-angled, the lower part sharply angled; the upper sides narrowed above. The apex of the wing is not so yellow in colour as the rest, the smoky tint there being quite noticeable. On the face, touching the eyes, there are two small yellow spots.

Closely allied to *I. semiobscurus*, but differing from it in the yellowish wings, stigma, and nervures, by the postpetiole not being so distinctly raised in the centre, and by the areolet being wider at the top.

7. **Ichneumon chiriquensis.**

Niger; antennis, tegulis, tibiis, femoribus tarsisque anterioribus sordide testaceis; alis hyalinis, stigmate et costa testaceis, nervis fuscis. ♂.

Long. 14 millim.

Hab. Panama, Volcan de Chiriqui 4000 to 5000 feet (*Champion*).

Head and thorax covered with a dense fuscous pubescence, which is especially long on the breast, and marked with shallow punctures, which are all clearly separated; the mesopleuræ smooth, shining, impunctate. Head excavated above the antennæ, not buccate; with a suture running down from the front ocellus. Scutellum rounded, not much elevated, longer than broad, rounded at the base and apex; shining, the disc bearing scattered punctures, the sides with a few longitudinal striations. Postscutellum aciculated, the scutum on either side of it largely depressed, shining, obscurely aciculated. Metathorax opaque, transversely striated all over; the areas entirely obliterated. Petiole broad, the base not much narrower than the apex; basal half smooth and shining, depressed in the middle; apical portion also depressed in the middle, and with a blunt tubercle on each side at the part where it unites with the smooth basal half; apical half aciculated, covered with large punctures, except the extreme apex, which is smooth, shining, and a little raised above the next segment, especially in the middle,

there being a depression on either side. The remaining segments convex, punctured, the punctuation becoming fainter, and the punctures wider apart as the blunt apex is reached. Gastrocœli distinct, broad, deep; extending upwards from the side at the extreme base, then proceeding obliquely downwards to near the middle, then becoming very shallow, and projecting upwards again as a wide shallow depression. At the base of the third segment is an oblique depression, and there is also a shallower one at the apex, extending from the side nearly to the centre above. The apical segment (the eighth) is scarcely half the length of the seventh; its sides incised; cerci long, pilose. Legs stout, but not very long; posterior coxæ with a hollow at their apices behind, the sides of the hollow being margined. The anterior femora are scarcely testaceous behind; the tibiæ and tarsi are more or less testaceous behind as well as in front; the middle tibiæ incline to piceous, as do also the sides of the petiole at the apex. The antennæ are as long as the body. Areolet sharply triangular above.

8. **Ichneumon bellatulus.** (Tab. VII. fig. 7.)

Niger; orbitis oculorum, facie (medio excepto), pronoti laterali, tegulis, scutello, postscutello, maculis 2 metanoti, abdominis segmentis 1° et 2° cingulo apice, tibiis anterioribus, posticis (apice excepto) tarsorumque basi albis; alis hyalinis, stigmate sordide testaceo, nervis nigro-fuscis. ♂.

Long. 13 millim.

Hab. Mexico (*Bilimek*, ♀?); Panama, Volcan de Chiriqui 4000 to 5000 feet (*Champion*).

Covered nearly all over with large (comparatively) clearly separated punctures, and with a longish fuscous or griseous pubescence. The orbits of the eyes are broadly white all round, but broadest in front; the face below the antennæ is white, except a broad black line which runs from the antennæ to the mouth; there is also a small white mark on the mandibles, which are punctured. The excavation above the antennæ is, as usual, smooth and shining; the front projects, especially immediately below the antennæ, the projection forming almost a blunt keel in the centre. The collar is aciculated, and there is a broad white line on its middle, this line being broader than the line along the side. Scutellum with a few large punctures above; the sides obscurely keeled above; laterally it has a gradual slope, which is striolated irregularly; the slope behind is smooth, shining, impunctate. Centre of metanotum at the base almost impunctate; areas obsolete, the sides covered with a long griseous pubescence; the white marks at the sides are longer than broad, rounded at the apex, the base curved inwardly so that the sides project. Petiole at the base and middle smooth, shining, impunctate; apex covered with punctures. Gastrocœli transverse, the base striolated, apex aciculated. The white band on the first abdominal segment is of nearly equal length; that on the second is nearly double the width of the first band at the sides; in the middle it is interrupted, and much contracted at the apex. The extreme apices of all the segments are impunctate, shining, the rest punctured and covered with a black pile. The legs are covered with a pale pubescence, which is especially long on the

coxæ. The coxæ and femora are punctured; on the posterior coxæ, behind, is a large white mark, longer than broad. Wings shorter than the thorax and abdomen together, faintly fuscous in tint; areolet 5-angled.

A female, apparently of this species, from Orizaba, has a broad white ring on the middle of antennæ, the white marks on the metanotum are united above, the upper united portion projecting above the sides; otherwise coloured as in the male.

9. **Ichneumon oppilatus.**

Niger; facie, scapo antennarum subtus, linea pronoti, scutello, maculis 2 metanoti, abdominis segmentis marginalibus, geniculis tibiisque proparte flavis; alis hyalinis, stigmate testaceo.
Long. 13 millim.

Hab. Mexico, Orizaba (*Bilimek*).

Antennæ stout, the joints longer than broad. Head covered with a silvery white pubescence; front excavated, punctured; the inner orbits of the eyes are yellow to the ocelli, the outer orbits yellow in the middle; mandibles and palpi yellow, the tips of the former brownish. Thorax covered with a silvery white pubescence, coarsely punctured, the punctures running into striations on the pleuræ. Scutellum but slightly elevated. Metanotum hollow in the centre, the upper area open at apex, the other areas not defined. Petiole bordered at the sides, aciculated, the postpetiole strongly striated longitudinally. Abdomen closely punctured all over, the apex blunt; the second segment broadly yellow at the base, third with a narrow band contracted in the middle; the apices of the other segments bordered with yellow. The basal half of anterior femora, anterior tibiæ entirely in front, more than the basal half of four posterior tibiæ, the anterior coxæ at the apex, and all the spurs yellow. There is a small yellow roundish mark on the mesopleuræ, and the tubercle beneath the tegulæ is also yellow. Areolet 5-angular, the lateral nervures converging above, but not closely.

Differs from *I. bellatulus* in its strongly striated, totally black postpetiole, black tegulæ, yellow spurs, more strongly punctured metanotum, and by every one of the abdominal segments being bordered with yellow.

10. **Ichneumon meridionalis.** (Tab. VII. fig. 2.)

Ichneumon meridionalis, Cresson, Proc. Ent. Soc. Phil. iv. p. 12; Proc. Acad. Phil. 1873, p. 111[1].

Hab. Mexico[1], Orizaba, Mirador; Guatemala, San Gerónimo (*Champion*); Nicaragua, Chontales (*Janson*); Costa Rica, Cache (*Rogers*); Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).—West Indies, Cuba[1].

11. **Ichneumon pterelas.** (Tab. VII. fig. 4.)

Niger; abdomine (basi excepta) rufo; flagello antennarum annulo flavo; alis flavo-fumatis, nervis cum stigmate flavis. ♀.
Long. 13–15 millim.

Hab. Mexico, Orizaba (*Bilimek*).

Head and thorax coarsely punctured, opaque or semiopaque, covered with a close pubescence. Head much excavated above the antennæ, face not much projecting, apices of mandibles ferruginous. Scutellum scarcely raised above the mesonotum, the sides indistinctly bordered. Metathoracic areas distinctly defined, supramedian a little longer than broad, the sides nearly straight. Petiole broad at apex, its sides depressed, above longitudinally striated, the raised central part bordered, finely longitudinally striated. Apex of abdomen acute. Legs stout; the anterior tibiæ and tarsi obscure ferruginous in front. Areolet 5-angled, the sides a little converging above.

In some specimens the apex of the petiole is rufous. The coloration of the body is the same as in *I. meridionalis*; but it is easily distinguished from that species by the yellowish wings, with the areolet converging above; and it is also a stouter insect.

12. **Ichneumon decemmaculatus.**

Niger; facie, palpis, orbitis, linea pronoti, maculis 10 thoracis, pleuris, sterno, coxis, trochanteribus anterioribus posticisque subtus albis; femoribus posticis subtus abdominisque rufis; pedibus anterioribus subtus flavis; alis hyalinis, nervis et stigmate nigris. ♂.

Long. 20 millim.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Smooth, shining, punctured, the punctures on the head and mesonotum distinctly separated; base of metanotum opaque, finely rugose, the apex more shining and more strongly punctured. The upper metathoracic areas obsolete, the lateral not very clearly defined. Postpetiole strongly rugose, the rest of abdomen finely punctured, semirugose. Gastrocœli large, deep, aciculate. On the head, the part above and behind the antennæ is black; the rest, including the mandibles (except their apices, which are black), being white. Clypeal foveæ large, front broadly but not acutely projecting, a furrow on either side of the projection. On the thorax, the sternum, the lower part of the mesopleura, a line on the pronotum, the tubercles beneath the tegulæ, two small marks in centre of mesonotum, the apical three fourths of the scutellum, the postscutellum, two small marks at base of metanotum, one beneath the hind wings, a larger one on the metapleuræ over the coxæ, and two roundish ones at apex of metanotum, close to the sides, white. The four anterior legs are yellowish white beneath; above they are broadly lined with black; the apical joints of the tarsi are entirely black; the anterior legs are entirely black, except a large mark on the underside of the coxæ and a mark on their base behind, which are yellow; the greater part of the femora beneath and the tibiæ beneath in the middle are reddish. The apex of the petiole and of the postpetiole is black. Areolet 4-angled, the top triangular. Antennæ longish, the scape yellow beneath.

13. **Ichneumon argentipilosis.** Neotropichneumon T. Heinrich.

Niger; facie, palpis, orbitis oculorum, flagello antennarum annulo, linea pronoti, maculis 2 mesonoti, margi-

nibus scutelli coxisque anterioribus flavis; pedibus abdomineque rufis, petiolo supra nigro; alis hyalinis, nervis nigris, stigmate fusco-testaceo. ♀. ♂ sterno flavo.
Long. 18–21 millim.

Hab. GUATEMALA, Purula (*Champion*); PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Smooth, shining, the face bearing some large shallow punctures; metanotum rugose; the pleuræ and metanotum densely covered with silvery pubescence; postpetiole punctured; abdomen aciculate, not so shining as the mesonotum. Head large, cheeks well developed, eyes projecting, clypeal foveæ large. The head is black only above and behind the antennæ, the orbits are yellow all round. Mandibles yellow, black at the apex. The margin of the prothorax is broadly yellow; the prosternum is also yellow; below the tegulæ is the usually yellow tubercle; the two spots on the mesonotum are small; the scutellum flat, bearing a few punctures, and lined with yellow, except at the base. Areas on metanotum indistinct, without tubercles, the middle behind excavated. Abdomen elongate, the apex acute; gastrocœli shallow, finely aciculate. Sheath of the ovipositor blackish. Antennæ thickened towards the apex and slightly flattened, semi-involute. Areolet 5-angled, broad above, the upper part not much narrower than the lower.

The antennæ in the male are much longer and thinner than in the female, the basal joints being much longer.

This species is very closely allied to *I. mexicanus*, but is, I believe, distinct from it, *I. mexicanus* having the "pectus and pleuræ beneath" white in both sexes, and on the mesonotum, instead of the two spots in the centre found in the present species, there is a thin line at the side close to the tegulæ. There is also in *I. mexicanus* a black spot on the hind coxæ, and the scape in the male has the basal joint beneath yellow; but two males of what I consider to be *I. argentipilosis* have these latter peculiarities.

14. **Ichneumon mexicanus.**

Ichneumon mexicanus, Cresson, Trans. Amer. Ent. Soc. ii. p. 2; Proc. Acad. Phil. 1873, p. 111. 3[1].

Hab. MEXICO, Cordova, Orizaba, Mirador [1].

15. **Ichneumon suffultus.**

Niger; facie, pleuris, linea pronoti, apice scutelli maculisque 4 metanoti flavis; pedibus nigris, anterioribus subtus flavis, femoribus tibiisque posticis subtus rufis; abdomine rufo, basi nigro; alis hyalinis, stigmate, costa et nervis nigris. ♂.
Long. 17 millim.

Hab. PANAMA, Volcan de Chiriqui, 4000 to 6000 feet (*Champion*).

Antennæ black, the scape yellow beneath, nearly as long as the thorax and abdomen together. Head broad; vertex finely punctured; front projecting, so that there is a deep and broad depression on either side; hollow above the antennæ deep, smooth,

the back of the head and vertex are black, the rest yellow, except the tips of the mandibles, which are black. Thorax punctured; scutellum flat, the sides keeled, the apex rounded, the upper part punctured, the punctures wider apart and larger than on the mesonotum. Metathorax flat, broad above, opaque, finely rugose, the apex with large coarse punctures, suboblique, the centre scarcely hollowed; the supramedian area obsolete. The tegulæ are white behind; the edge of the pronotum is white throughout; in the middle of the mesonotum are two short white lines. The apical half of the scutellum, the postscutellum, a small mark on either side at the base, and two large pear-shaped marks at the apex of the metanotum, a larger mark on the pleuræ, and the pro- and mesosternum yellow, the sutures of the latter, however, being black. Petiole aciculate; postpetiole coarsely rugulose, black, the sides excepted. Abdomen rather long, closely and longitudinally punctured. Gastrocœli large, broad, aciculate; the sides striated. The four anterior legs are entirely yellow on the underside; the coxæ wholly yellow; the posterior coxæ black, yellow at the base above and beneath; the hind trochanters are, for the greater part, black; the femora reddish beneath, except at the apex; the hind tibiæ black, except in the middle beneath; hind tarsi entirely black. Areolet scarcely 5-angled, the lateral nervures being almost united at the top.

16. **Ichneumon totanacus.**

Ichneumon totanacus, Cresson, Trans. Amer. Ent. Soc. ii. p. 10; Proc. Acad. Phil. 1873, p. 111[1].

Hab. Mexico, Orizaba [1].

17. **Ichneumon otomitus.**

Hoplismenus otomitus, Cresson, Trans. Amer. Ent. Soc. ii. p. 21[1].

Ichneumon otomitus, Cresson, Proc. Acad. Phil. 1873, p. 112.

Hab. Mexico, Orizaba [1].

18. **Ichneumon chiapus.**

Ichneumon chiapus, Cresson, Proc. Acad. Phil. 1873, p. 112[1].

Hab. Mexico, Cordova [1].

19. **Ichneumon curiatus.**

Ichneumon curiatus, Cresson, Proc. Acad. Phil. 1873, p. 112. no. 7[1].

Hab. Mexico, Orizaba [1].

20. **Ichneumon dilucidus.**

Ichneumon dilucidus, Cresson, Proc. Acad. Phil. 1873, p. 112. no. 8[1].

Hab. Mexico, Orizaba (*Bilimek*), Cordova [1].

What I take to be this species differs from *I. phædra* in the stigma (the colour of

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which is not mentioned by Cresson) being black with a ferruginous tinge; the costa is also blackish; the areolet as in *I. phædra*; there are no tubercles on the metanotum; the abdomen is longitudinally aciculate; the middle of the postpetiole is more distinctly separated from the sides; the pubescence is denser on the pleuræ; and is altogether a broader and stouter insect. The body is entirely ferruginous.

21. **Ichneumon phædra.**

Ferrugineus; facie orbitisque oculorum flavis; flagello antennarum, linea ad basim scutelli, metanoto abdominisque segmento 3° nigris; alis fulvo-hyalinis.
Long. 17 millim.

Hab. GUATEMALA, Purula (*Champion*).

Body covered with a close fuscous pubescence, which is longest on the thorax. Head slightly, the mesonotum more strongly and closely punctured; pleuræ obscurely striated. Scutellum a little broader than long, the sides carinate in front, the apex rounded and prominent; postscutellum distinct, broader than long, rounded at either side, smooth, shining, scarcely punctured. Metathoracic areæ distinct, all clearly defined; lateral tubercles blunt. Petiole smooth, shining, impunctate, except for one or two punctures along the sides, which are indistinctly keeled. Postscutellum closely punctured like the thorax. Abdomen closely and strongly punctured; the base of the anterior segments longitudinally striated; all the segments constricted at the base. Wing nervures blackish; costa and stigma obscure testaceous, the latter darker at the apex; areolet triangular above. The antennæ are not much longer than the abdomen.

22. **Ichneumon sycophantus.** (Tab. VII. fig. 8.)

Ferrugineus; facie orbitisque oculorum flavis, flagello antennarum, lineis ad basim scutelli, metathorace abdominisque segmentis 1°–5^{m} nigris, alis fulvo-hyalinis, stigmate fusco. ♂.
Long. 18 millim.

Hab. GUATEMALA, Purula (*Champion*).

This species differs from *I. phædra* as follows:—The middle of the postscutellum is not punctured (the sides in *I. phædra* being punctured), but finely striated; the gastrocœli are larger; the base of the petiole, and a transverse band on the second, third, fourth, and fifth segments are black; the surface of the metathorax is rougher, thereby rendering the areæ less clearly defined, and the lateral tubercles are, if anything, larger; the coxæ are more coarsely punctured; the lateral nervures of the areolet do not touch above; and the stigma is fuscous, not testaceous.

23. **Ichneumon subfumatus.**

Testaceus; antennarum apice nigro, medio flavo, basi fusca; alis ferè fumatis, stigmate sordide testaceo. ♀.
Long. 15 millim.

Hab. GUATEMALA, Zapote (*Champion*).

Antennæ nearly as long as the abdomen and thorax together, subinvolute and thickest at the apex, stout, the third joint nearly one fourth longer than the fourth, the scape ferruginous. Face flat, eyes margined; the middle of the face, and the orbits yellowish. Head punctured, the punctures rather large. Mesonotum longitudinally strongly punctured; the pleuræ less strongly, and if anything more closely punctured, and more shining. Scutellum but slightly raised above the scutum, the sides subcarinate, the upper part flat and covered with large punctures, which form longitudinal rows. Metanotum closely punctured, the tubercles short; the upper median area broader than long, rounded behind, truncated in front; the sides of the lower median area not very clearly indicated. Petiole smooth and shining, the sides inclining to yellow; post-petiole finely aciculate. Abdomen shining, the apex acute; gastrocœli flat, aciculate, the sides striated; the rest of abdomen punctured, but not strongly, all over. Legs stout, the coxæ punctured, the apices of the tarsal joints black.

A larger species than *I. lariceus*, with the abdomen longer and much more acutely pointed; the colour, too, is paler, and the punctuation is not so strong, except on the scutellum; the base of the flagellum is fuscous; the wings are darker and longer; and the antennæ are also longer. *I. dilucidus* is a larger insect with the wings clearer; the scutellum more sharply raised over the scutum, and with its sides much more distinctly carinate, the punctuation closer; and the abdomen longitudinally striated.

24. **Ichneumon lariceus.** (Tab. VII. fig. 9.)

Ferrugineus; antennarum medio albo, apice brunneo; alis fusco-hyalinis, nervis fuscis, stigmate fusco, basi albo.

Long. 10 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Head and thorax closely punctured all over, and covered with a white pubescence. Scutellum smooth, almost impunctate, shining, not much raised above the scutum, narrowed towards the apex; a keel running from the mesonotum at the end of the fovea at its base to the middle of the scutellum. Metathoracic areæ all well defined, the supramedian area horseshoe-shaped, the middle of the metanotum slightly excavated; lateral tubercle not very large. Petiole distinctly keeled along the sides above; the apex longitudinally and finely striated. The rest of abdomen closely punctured like the thorax; apex bluntly acuminate; sheath of ovipositor projecting, black. Gastrocœli obsolete. Areolet 5-angled, bullæ distinct. Legs robust, covered with a white pubescence; coxæ closely punctured. Antennæ stout, involute; third and fourth joints subequal.

I. dilucidus comes very near the present species, but differs in being larger, in having the abdomen longitudinally aciculate, the stigma quite black, the areolet converging above, &c. Its smaller size, half fuscous and half white stigma, and obsolete gastrocœli distinguish it from *I. phædra*.

25. **Ichneumon veræpacis.**

Ferrugineus; apice antennarum nigro, medio palpisque albidis; alis fere hyalinis, stigmate pallide flavo. ♀. Long. 8 millim.

Hab. Guatemala, Panima (*Champion*).

Antennæ stout, becoming gradually thicker towards the apex, involute; the third joint a little longer than the fourth; joints seven to sixteen white, the following black. Head tumid, closely punctured, sparsely covered with a short white pubescence; tips of the mandibles blackish. Thorax closely punctured; the pleuræ (including the sides of the pronotum) coarsely and longitudinally striated. Scutellum smooth, shining, scarcely punctured, the sides carinate, narrowed towards the apex. Metanotum punctured and transversely striated; upper median area longer than broad, harp-shaped; middle of the metanotum hollowed; lateral tubercles large, more than double as long as broad. Petiole smooth, shining, the sides keeled; postpetiole finely punctured. The rest of the abdomen smooth, shining, microscopically punctured; the second segment more strongly punctured at the sides; the sides and apex covered with rather long pale pubescence. Sheath of ovipositor black. Areolet 5-angled, the upper part narrower. The costa is fuscous black.

Closely allied to *I. lariceus*, but smaller and narrower, and easily known from it by the strongly striated pleuræ, longer tubercles on the metanotum, almost impunctate abdomen, and pallid yellow stigma; the wings, too, are clearer, and the areolet is longer and more narrowed above. In *I. subpinguis*, a species resembling this in coloration, the antennæ are much longer, not so stout, and not involute; the metathoracic tubercles almost obsolete, the pleuræ not striated, and the stigma black.

I. veræpacis is certainly very closely related to *I. ablutus*, but, I think, distinct from that species; all the nervures, for instance, in *I. ablutus* are said to be honey-yellow, while the costa and the nervures in *I. veræpacis* are fuscous black; neither can the words "yellowish brown" be applied to the base of the antennæ; nor is the term "shagreened" applicable to the strongly punctured and striated thorax of the species just described.

26. **Ichneumon ablutus.**

Ichneumon ablutus, Cresson, Proc. Acad. Phil. 1873, p. 113. no. 9[1].

Hab. Mexico, Orizaba[1].

27. **Ichneumon passirus.**

Ichneumon passirus, Cresson, Proc. Acad. Phil. 1873, p. 113. no. 10[1].

Hab. Mexico, Orizaba[1].

28. **Ichneumon frivolus.**

Ichneumon frivolus, Cresson, Trans. Am. Ent. Soc. ii. p. 11; Proc. Acad. Phil. 1873, p. 113. no. 11[1].

Hab. Mexico, Orizaba, Cordova[1].

29. **Ichneumon subpinguis.**

Niger; flagello antennarum nigro, medio albo, apicibus tibiarum et tarsorum nigris; alis hyalinis, nervis et stigmate nigris. ♀.
Long. 9 millim.

Hab. GUATEMALA, Cerro Zunil 4000 feet (*Champion*).

Antennæ longish, as long, if not longer, than the body, scarcely tapering towards the apex. Head closely punctured, the face with a broad, flattish carina (broadest at the apex) in the middle. Eyes margined, bordered with yellow in the middle in front and behind. Thorax punctured all over, covered with a white silvery pubescence; the edge of the pronotum, and the tubercle below the tegulæ clear yellow; postscutellum large, smooth, shining, with scarcely any punctures, its sides (as are also the sides of scutellum) carinate. Mesopleuræ hollowed posteriorly. Postpetiole broad, finely aciculate. Gastrocœli large, striated. Abdomen broad, its apex somewhat acute; punctured, except at the apex, which is rather aciculate; the punctures distinctly separated. Metathoracic areæ all defined; lateral tubercle obtuse. Legs stout, longish; coxæ punctured. Areolet converging somewhat above, but the nervures do not touch; the recurrent nervure is received nearer the base than apex.

I. frivolus is perhaps the male of the present species; but it is stated to have the tarsi pale ferruginous, the cheeks prominent, and the sutures of the pleuræ and the base of the metathorax black.

30. **Ichneumon eros.** (Tab. VII. fig. 14.)

Hab. GUATEMALA, Volcan de Agua 8500 to 10,500 feet (*Champion*).

In coloration this species is identical with *I. subpinguis*, except that the apices of the hind tibiæ and of the tarsi are not black, and that there is no trace of yellow on the pronotum. The antennæ are similar in form, but, if anything, thicker at the apex; they are also ferruginous, except at the apex, which is broadly black, and the four joints in front of the black apical joints, which are yellowish white; they are nearly as long as the body. The eyes are bordered with yellow. The face projects in the middle, and the clypeus projects still more, being separated from the part above it by a transverse depression. Head and thorax finely punctured; the pleuræ at the posterior end obscurely and longitudinally striated. Scutellum aciculated, convex, broad on the disc, the sides carinate, the keels meeting on the upper part behind, but they are not very distinct at the place of union. Metanotum obscurely rugose at the base, aciculate at the apex; all the areæ clearly defined; the upper median area a little broader than long, the anterior part rounded; lateral tubercles conspicuous. Postpetiole broad, finely punctured, the centre not raised. Gastrocœli transverse, broader than long, smooth, shining; the extreme base of the second segment forms a ridge, with a transverse furrow at its apex, uniting the gastrocœli. Abdomen opaque, finely punctured. Areolet nearly converging above; stigma black.

The antennæ, flattened and dilated at the apex, remind one of *Joppa*, but in other respects this species agrees best with the genus *Ichneumon*.

31. **Ichneumon carinifrons.**

Ferrugineus; antennarum annulo facieque flavis; flagello antennarum (annulo excepto), abdominis segmentis 2°–4^{m} basi, tarsis posticis tibiarumque apice nigris; alis fusco-hyalinis, nervis fuscis, stigmate sordide rufo. ♀.
Long. 15 millim.

Hab. Mexico (*Bilimek*); Panama, Volcan de Chiriqui (*Champion*, ♂?).

Antennæ as long as the abdomen and half of the thorax, thickened a little beyond the middle, but narrowed again towards the apex, semiconvoluted; the base reddish. Head punctured, not buccated; the face with a broad keel down the centre, the keel becoming broader towards the apex. Palpi reddish. Mesonotum closely and coarsely punctured. Scutellum not projecting much above the mesonotum, but raised a good deal higher than the postscutellum; laterally it is raised considerably above, and clearly separated from the mesonotum; its sides are distinctly keeled throughout, the keels projecting over the sides; it is strongly punctured. Pleuræ less strongly punctured than the mesonotum. Metathorax broad above, with an abrupt slope at the apex, which has a strong blunt tooth on each side; areæ obsolete. Petiole smooth, shining, hollow in the centre above, the sides carinate; postpetiole strongly punctured on its apical half. Abdomen closely and strongly punctured all over above, longer than the head and thorax together. Gastrocœli distinct, deep, broader than long. Areolet 4-angled, the lateral nervures joined above.

This species comes very near to *I. sycophantus*, but is smaller; the latter has not the areolet triangular above, its wings have a violaceous tinge, and are more uniformly fuscous [the fuscous tinge in *I. carinifrons* being only noticeable at the stigma]; the keel on the face is not so clearly defined; the scutellum is shorter, and has not such an abrupt slope at the apex; the metathoracic areæ are distinct, and the whole, not the apex only as in *I. carinifrons*, of the postpetiole is punctured.

What appears to be the male (from the Volcan de Chiriqui) has the antennæ black, except the scape; the suture separating the meta- from the mesonotum is black; the black bands on the abdomen are broader; and the stigma is much darker, especially at the apex. It may, however, be the male of another species.

32. **Ichneumon celatus.** (Tab. VII. fig. 13.)

Ferrugineus; facie scutelloque flavis; abdominis segmentis 3°–5^{m} cingulo basali, linea pleurali, coxis posticis subtus, femorum posticorum apice tibiarumque posticarum apice nigris; antennis nigris, basi et medio pallide rufis; alis hyalinis, stigmate testaceo.
Long. 13 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Head and thorax rather strongly punctured; scutellum shining, obsoletely punctured, large, broader than long, slightly elevated. Metathoracic areæ not very clearly

defined; a blunt, not very distinct, tubercle on each side. Petiole shining, smooth, the apex finely striated and punctured; the sides keeled; the sides of the postpetiole depressed above. The rest of the abdomen punctured all over, but not so strongly as the thorax. Gastrocœli large, a little longer than broad, finely punctured. Coxæ strongly, femora finely punctured. The black line on the pleuræ runs obliquely from the tegulæ to the posterior coxæ. The petiole is black on the underside and at the extreme base above. The bands on the third to fifth segments go all round, and occupy about one third of the entire segment. As with most of the species the excavated space above the antennæ is smooth and black. The body is covered with a griseous, sparse pubescence. Antennæ one half longer than the head and thorax together, tapering towards the apex; the joints beyond the middle produced beneath; third joint about one third longer than the following. Areolet 5-angled.

Closely allied to *I. maculipleuralis* and *I. sycophantus*, but easily separated from those species by the black apices of the posterior femora and tibiæ. Compared with the latter, the scutellum is broader and flatter, and the antennæ have a pale reddish band in the centre.

33. **Ichneumon forreri.** (Tab. VII. fig. 15.)

Ferrugineus; flagello antennarum fusco, lineis pleuralibus, metathoracis basi et apice, petiole subtus, trochanteribus, femorum posticorum apice tibiarumque posticarum apice late nigris, tarsis posticis fuscis; alis fuscis, stigmate nigro, basi albo. ♂.
Long. 8 millim.

Hab. Mexico, Ciudad in Durango 8100 (*Forrer*).

Head and thorax finely and closely punctured, and covered with a white pubescence; the punctures wider apart and longer on the pleuræ. Head not dilated behind the eyes; the front broadly, but not largely, projecting in the centre; clypeus with a few widely separated punctures. Scutellum not raised above the level of the mesonotum; the depression at its base deep and wide; the upper part bearing distant punctures; the carinæ scarcely extending on to the sides of the scutellum; it is a little longer than broad, somewhat narrowed towards the apex. Metathorax with a gradual slope, shagreened-punctured; the areæ clearly defined; the supramedian area rounded above, very slightly dilated in the middle at the sides, and at the apex indented by the lower area, which occupies the whole of the front of the metanotum, and is rougher in texture than the rest. Lateral tubercles acute. Petiole smooth and shining; postpetiole aciculated. Abdomen closely and finely punctured all over. Gastrocœli completely obsolete. The antennæ are nearly as long as the thorax and abdomen together; the underside of the flagellum at the apical half is brownish; the upperside of the scape is marked with black. The prosternum is almost entirely black; the mesosternum is broadly black at the base and narrowly black at its junction with the metasternum, which is also black; the sutures between the meso- and metapleuræ, the scutum at the side of the scutellum, and the space above the suture between the meso- and

metanotum are broadly black. Areolet 5-angled; the lateral nervures but slightly converging above.

This is a smaller species than either *I. celatus*, or *I. jalapensis*; the former has the metanotum much more hollowed in the middle, the gastrocœli visible, although not very distinct, and it differs otherwise in coloration; the latter has the gastrocœli very distinct, and the tibiæ and tarsi white.

34. **Ichneumon jalapensis.**

Ferrugineus; antennis pro majore parte, facie, scutello, tibiarum posticarum dimidio basali tarsisque posticis flavis; geniculis posticis tibiarumque posticarum apice late nigris; alis hyalinis, nervis nigris, stigmate nigro, basi albo.

Long. 10 millim.

Hab. Mexico, Jalapa (*Bilimek*).

Antennæ as long as the thorax and abdomen together, stout, covered with a microscopic pile, the base and apex darker than the central parts, which are distinctly yellowish. Head finely punctured, and with a broad, flat ridge down the centre of the face. Thorax coarsely punctured. Scutellum rounded, broader than long. Metathorax coarsely punctured, the areæ all defined, a tubercle on each side, and the apex with a rounded gradual slope. Postpetiole rather strongly punctured, the sides depressed; base of second segment with longitudinal broad striations, its apex black. Gastrocœli large, coarsely striated, rest of abdomen closely punctured. Areolet 5-angled, the sides but slightly converging above.

35. **Ichneumon tumidulus.** (Tab. VII. fig. 12.)

Ferrugineus; abdominis segmentis 3° et 4° basi, tibiarum posticarum apice tarsisque posticis nigris; antennis nigris, medio albo, basi late rufa; alis flavo-hyalinis; nervis testaceis.

Long. 12 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Head rather tumid, not very largely excavated above the antennæ, finely punctured. Thorax closely and rather coarsely punctured, the punctures running into striæ on the pleuræ and mesonotum. Pronotum in front raised into a conspicuous margined ridge, and in front of this, and touching the head, is a smaller ridge, forming between them a large (comparatively) furrow, which widens as it reaches the sternum, and is transversely striated. Scutellum large, broader than long, rounded and narrowed behind, not much raised above scutum. Metathorax large, rounded behind, the middle slightly excavated; the areæ not clearly defined; a well-defined keel over the excavated apex, and a blunt tubercle at the side on this keel. Postpetiole broad, finely striated, the sides scarcely depressed. Gastrocœli rather small, deep at base, finely punctured; the rest of the abdomen finely and closely punctured; the apex acute; cerci long, conspicuous; ovipositor projecting beyond them, black. Coxæ rather strongly punctured; femora less so; posterior coxæ excavated on outside, the hollow transversely striated. The suture between the meso- and metapleuræ is broadly black. Legs and antennæ stout; the

latter involute, the joints thick, a little longer than broad; third joint a very little longer than the fourth. The bases of the joints of the black posterior tarsi are dull testaceous, or sometimes entirely testaceous. Areolet 5-angled, broad above.

This species is closely related to *I. maculipleuralis*, but is a smaller and less robust insect, the petiole is smaller, and the gastrocœli are smaller and not striated round the edges; the punctuation of the abdomen is stronger, and its apex is more acute; the terebra and cerci are longer, and the posterior tibiæ are black at the apex.

36. **Ichneumon curtituberculatus.** (Tab. VII. fig. 11.)

Ferrugineus; apice antennarum abdominisque segmentis 3° et 4° basi nigris, flagello antennarum medio flavo; alis flavo-hyalinis, nervis et stigmate flavis. ♀.
Long. 11 millim.

Hab. Mexico, Guadalupe (*Bilimek*).

Head and thorax strongly, the abdomen very finely and closely, punctured. Scutellum raised a little above the mesonotum, carinate at the base, longer than broad, narrowed towards the apex. Metathoracic areæ all well marked; supramedian area longer than broad, the middle angled, projecting a little, scabrous. The base of the metanotum is bordered with black, and the apex of the pronotum is yellow. Petiole smooth and shining, bicarinate at the sides; postpetiole broad, finely and longitudinally striated.

Comes very near *I. tumidulus*, but that species may be known from *I. curtituberculatus* by its scutellum being broader than long, flatter, not so strongly punctured, and yellowish in colour; the supramedian area longer, narrower, and with the sides quite parallel; the abdomen longer and more sharply pointed at the apex; and the apices of the hind tibiæ broadly black.

37. **Ichneumon maculipleuralis.**

Ferrugineus; thorace et abdomine nigro lineatis; alis flavo-hyalinis, nervis fuscis, stigmate testaceo. ♀.
Long. 17 millim.

Hab. Mexico (*Sallé*).

Head subbuccate, excavated above the antennæ, the excavated part black, smooth, and shining. Vertex shagreened; face more shining, bearing shallow scattered punctures, and sparsely covered with white hair. Eyes surrounded by a furrow all round, the head projecting behind them; vertex, and sides above, covered with a fuscous pile. Thorax covered with shallow punctures, almost shining. Metapleuræ striated, the suture crenulated. Scutellum flatly convex, broadly rounded behind and before; the apex rounded, narrower than the base, and covered with shallow scattered punctures; a deep furrow at its base; postscutellum separated from it by a suture. Metathorax closely punctured, large, the disc with a gentle slope, the apex subvertical, retreating in the centre; the metathoracic areæ obsolete, the lateral keels only being faintly indicated. Petiole smooth, shining, the sides keeled at the top and bottom: the keels do not

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extend to the broad apex, which is longitudinally striated in the centre and punctured at the sides; the following segment of the abdomen is closely punctured all over and striated at the base; the next slightly punctured; the following scarcely punctured; the apical impunctate, smooth, and shining. Gastrocœli large, a semiopaque furrow at the bottom; the upper (and inner) side strongly striated. The thorax and abdomen are covered with a greyish pubescence. The following parts are black:—the sternum entirely, the sutures of the pleuræ, the space above the coxæ, the pronotum on the disc in front, the scutellum and postscutellum all round, the lower part of the metanotum, the third, fourth, and fifth abdominal segments at the base above, and the sheath of the ovipositor at the apex. Legs stout. Coxæ obscurely punctured; the posterior pair hollow on their outer side. Areolet 5-angled, longer than broad; recurrent nervure received nearer the apex than base.

A stout robust species.

38. **Ichneumon platyaspis.**

Hab. Mexico, Chapultepec (*Bilimek*).

In size and sculpture this species agrees with *I. maculipleuralis*, as it does also in coloration, except that there is no black on the thorax, while the apices of the posterior tibiæ are black. The face is densely covered with reddish-yellow hair, which almost hides the punctuation. The pleuræ are neither so shining nor so smooth; the mesopleuræ are longitudinally striated on the lower side. The supramedian area of the metathorax is broader, and the gastrocœli are shallower and much less distinct.

39. **Ichneumon impudicatus.**

Ferrugineus; facie, orbitis oculorum, abdominis segmentis 1^{o}–4^{m}, apice coxisque anterioribus subtus, flavis; abdominis segmentis 2^{o}–4^{m} basi nigris; tarsis pallide flavis; alis hyalinis, nervis et stigmate ferrugineis. ♀.

Long. 16 millim.

Hab. Mexico (*Bilimek*).

Head somewhat dilated behind the eyes; the face bluntly projecting in the middle, and closely punctured all over. Thorax coarsely punctured all over; closely covered with a black or fuscous pubescence on the disc, the sides with paler pubescence. There are two furrows in front of the mesonotum running to the pronotum. Scutellum convex, narrowed behind, the sides in front bluntly carinate. Metanotum with a gradual slope, depressed in the centre, coarsely punctured, the punctures running into reticulations at the sides and apex. The upper median area is a little broader than long, the sides dilated in the middle, the apex open; the lateral keels of the supramedian area, and the lateral tubercle also, are almost obsolete. Petiole carinate, the postpetiole depressed, at the sides; both are smooth, shining, and obscurely aciculate. Gastrocœli deep, longer than broad, contracted at the base, and coarsely striated. The remaining abdominal segments are coarsely and closely punctured all over; the black band on the second

segment is broad, and occupies more than two thirds of the surface, the other bands are narrower.

The antennæ, except the scape and the two basal joints of the flagellum, are unfortunately wanting in the single specimen before me; the former is ferruginous in colour; the latter black, reddish beneath. The tegulæ, the tubercle below them, the sutures of the pleuræ, the mesosternum, the apex of the scutellum, and the postscutellum are yellowish. The metanotum behind has a yellowish tinge.

Compared with *I. platyaspis*, the present species has a longer and narrower abdomen, the metanotum is not so much hollowed in the centre, the postpetiole is not longitudinally striated, and the scutellum is much more convex; the same characters separate it equally well from *I. maculipleuralis*. The form of the areolet is nearly the same in the three species.

40. **Ichneumon consanguineus.**

Rufo-testaceus; flagello antennarum, vertice lineisque 2 mesonoti nigris; alis hyalinis, nervis nigro-fuscis. ♂.
Long. 14 millim.

Hab. Mexico (*Sallé*).

Head subbuccate, obscurely punctured, deeply excavated above the antennæ, the excavation smooth, shining, and divided in the middle. Thorax punctured. Scutellum subconvex, but little elevated, smooth, shining, impunctate, the sides arcuate. Metanotum with the areæ obsolete; a short blunt tubercle on each side. Petiole smooth, shining; postpetiole punctured, a slight furrow along each side above. Gastrocœli shallow, situated at a little distance from the base of the segment, transverse, and finely punctured. Abdomen punctured, pilose; apex bluntly acuminate. Coxæ punctured; the long spur of the posterior tibiæ reaching beyond the middle of the metatarsus. Areolet 5-angled. The black on the vertex is rather obscure; the two longitudinal lines on the mesonotum are broad and extend from the scutellum to beyond the tegulæ; and there is a curved black mark at the extreme base touching the pronotum. The colour of the abdomen, compared to that of the thorax, is rather obscure, but this is probably owing to accidental discoloration.

41. **Ichneumon salvini.** (Tab. VII. fig. 16.)

Rufo-testaceus; linea pronoti, facie, orbitis oculorum, tegulis scutelloque flavis; scapo antennarum testaceo, flagello medio albo. ♀.
Long. $13\frac{1}{2}$ millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Antennæ a little longer than the abdomen, somewhat thickened beyond the middle and compressed, the joints there broader than long; the apex acute. Head buccate; cheeks full; vertex obscurely punctured. Mesonotum obscurely punctured. Scutellum convex; the base broader than the apex, the latter subtruncated; sides abrupt, and

slightly concave. Metathorax coarsely and closely rugose, the apex almost reticulated; tubercles blunt, inconspicuous; areæ obsolete. Petiole smooth, shining, impunctate; the apex of the postpetiole with some punctures. Gastrocœli large, moderately deep, longer than broad. Abdomen closely punctured; the base shining, impunctate; the apex finely punctured, acuminate; sheath broad, projecting, issuing from the base of the sixth segment, pilose, the apex black. The head and thorax are sparsely pilose; the hair on the metathorax is longer than on the mesothorax, that on the abdomen is much closer and longer, especially at the apex. The metathorax is tinged with yellow, as are also the belly, the pronotum, and the legs at the base; the tubercle beneath the wings is also yellow; the apical joint of the posterior tarsi is black. Wings short; areolet 5-angled; stigma testaceous; nervures blackish.

42. **Ichneumon causticus.** (Tab. VIII. fig. 3.)

Rufo-testaceus; flagello antennarum nigro, medio læte albo, orbitis oculorum flavis; alis subfumatis, stigmate testaceo. ♀.

Long. 13 millim.

Hab. Guatemala, Zapote (*Champion*).

Antennæ semi-involute, thick, the third joint a very little longer than the fourth. Head not buccate, the front but little projecting; clypeal foveæ deep. Head and thorax closely, the pleuræ longitudinally, punctured. Scutellum flat on the disc, the sides carinate. Metathorax with a gradual slope; the areæ distinct; the supramedian area broader than long; the tubercles blunt. Petiole long, straight, and shining; postpetiole with a few punctures. The rest of the abdomen shining, and finely punctured. Gastrocœli shallow. Legs stout; coxæ punctured. Areolet 5-angled, narrower above; its outer nervure almost obsolete.

Almost identical in coloration with *I. salvini*, but a broader and stouter insect. The antennæ are stouter, and not compressed and dilated beyond the middle; the abdomen is shorter and broader; the petiole is longer; the metathoracic areæ are all distinct; and the wings have a well-marked smoky hue.

43. **Ichneumon additus.**

Ichneumon additus, Cresson, Proc. Acad. Phil. 1873, p. 114. no. 12 (♂)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

44. **Ichneumon citrinus.**

Ichneumon citrinus, Cresson, Proc. Acad. Phil. 1873, p. 114. no. 13 (♂)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

45. **Ichneumon izucarus.**

Ichneumon izucarus, Cresson, Proc. Acad. Phil. 1873, p. 114. no. 14 (♂, ♀)[1].

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*).

46. **Ichneumon arrogans.**

Ichneumon arrogans, Cresson, Proc. Acad. Phil. 1873, p. 115. no. 15 (♂, ♀)[1].

Hab. MEXICO, Orizaba, Cordova [1] (*Sumichrast*).

47. **Ichneumon godmani.** (Tab. VII. fig. 18.)

Ferrugineus ; pleuris, metanoto, abdominis segmentis basi (petiolo fere toto), coxis, trochanteribus, femoribus, tibiis metatarsisque posticis nigris ; medio antennarum flavo-testaceo ; alis fumatis, medio stigmateque flavis. ♂.

Long. fere 15 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Scabrous, covered with a white pubescence. Head buccate, slightly excavated above the antennæ ; eyes surrounded by a furrow ; clypeus rounded at the sides, transverse at the apex. Scutellum not much elevated above the scutum, rising to the centre equally from the base and apex, but more sharply from the former, smooth, shining, and covered with large punctures. Metanotum coarsely punctured, smooth and shining on either side of the upper median area : this is longer than broad, dilated at the sides, of equal breadth at the base and apex, and has a short area at its base. The metanotum has a gradual slope, and the lower median area is excavated. Petiole smooth, shining, hollow in the centre, the sides keeled, the keels projecting into the middle of the postpetiole, which is covered with large clearly separated punctures. Gastrocœli large, double as wide as long. The rest of the abdomen, like the thorax, scabrous ; the segments contracted at the base. The four anterior legs are of a lighter ferruginous tint than the rest of the body ; the four apical joints of the tarsi are yellowish testaceous, the spurs blackish. The flagellum is slightly dentated on the underside ; the base and apex of the flagellum tend to fuscous on the upperside.

Easily known from the other species of this group by the black pleuræ. As in the allied species, there are no tubercles on the metathorax.

48. **Ichneumon melanopoda.**

Ferrugineus ; antennarum apice, coxis posterioribus, femoribus, tibiis posticis, metatarsis, abdominisque segmentis basi nigris ; alis fuscis, medio stigmateque flavis. ♂.

Long. 13 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Scabrous, covered with a griseous shining pubescence. Antennæ as long as the abdomen and half the thorax united, stout ; the apical joints produced on the underside ; covered with a pale pubescence ; the third joint one fourth longer than the following. Head dilated behind the eyes ; the face rather flat, scarcely projecting in the centre. Scutellum with the sides abrupt, the centre with a gradual slope on either side. Metathorax large, gradually sloping to the base of the abdomen, the centre slightly hollowed ; the areæ almost obsolete ; and without tubercles. Petiole a little depressed

in the centre, smooth, shining, the sides keeled; postpetiole closely covered with large punctures. The rest of the abdomen is more strongly scabrous than the thorax; the segments are contracted at the base; towards the apex the black at the base of the segments becomes less and narrower in the middle. The anterior femora are more or less ferruginous; the black on the underside of the middle pair inclines to piceous. The knees are all ferruginous. The tibiæ (except the hind pair) are of a lighter ferruginous colour than the rest of the body; the spurs are also of this colour. Areolet 5-angled, a little narrower on the upperside; the recurrent nervure is received beyond the middle; the yellow band extends from the base to a little beyond the apex of the stigma.

Closely related to *I. godmani*, which may be easily known from the present species by being longer and stouter, by the metathorax being black, and by the metathoracic areæ being all clearly traced. The abdomen is not so strongly scabrous, and the antennæ are yellowish in the middle.

49. **Ichneumon panamensis.** (Tab. VIII. fig. 4.)

Ferrugineus; antennis, abdominis basi, pedibusque posterioribus nigris; antennarum medio apiceque tarsorum flavis; alis nigris, medio stigmateque flavis. ♂.
Long. 13 millim.

Hab. Panama, Volcan de Chiriqui 4000 to 5000 feet (*Champion*).

Very near to *I. melanopoda*, and not differing from it in sculpture and clothing; but it is broader both in the thorax and abdomen; and the latter has only the base of the petiole black. The antennæ are longer and yellow in the centre; the tips of the tarsi are yellow; the four anterior tibiæ are yellow in front; the suture separating the meso- and metathorax is black; and the wings are much blacker in tint.

It is too large to be the male of *I. lymphatus*, which has, besides, the four anterior legs entirely ferruginous, and the hind tarsi almost entirely black; the petiole, too, bears no black, nor does the suture of the metanotum, while the gastrocœli are more distinct, these in *I. panamensis* and *I. melanopoda* being obsolete.

50. **Ichneumon lymphatus.** (Tab. VII. fig. 19.)

Ferrugineus; apice antennarum pedibusque posticis nigris; alis fumatis, medio flavo-hyalinis, stigmate flavo. ♀.
Long. 9 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Strongly punctured, covered with a fuscous pubescence. Head buccate; face with a pale longish pubescence; eyes with a distinct narrow border all round. Scutellum moderately elevated; sides keeled in front, indistinctly keeled behind. Postscutellum broad, finely and longitudinally striated. Metathoracic areæ clearly defined behind, hollow in the middle. Petiole bicarinate on either side, the keels extending to the base of the postpetiole, which is strongly punctured; sides of the petiole with a row of

large punctures. Gastrocœli transverse, narrow, and aciculate. Abdominal segments constricted at the base, all strongly punctured; sheath of ovipositor projecting, black. Coxæ and femora strongly punctured. The base of the antennæ is of a brighter tint than the body, and it changes to a yellowish hue towards the middle. Wings shortish; areolet 5-angled, square above. The black colour of the hinder legs is not quite pure, being suffused more or less with ferruginous.

51. **Ichneumon cupidus.**

Ichneumon cupidus, Cresson, Proc. Acad. Phil. 1873, p. 115. no. 16 (♂, ♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

52. **Ichneumon championi.** (Tab. VII. fig. 17.)

Ferrugineus; pedibus posterioribus, abdominis segmentis 2°–3^m basi antennarumque apice nigris, his medio flavis; alis flavo-hyalinis, basi fuscis, stigmate testaceo. ♀.

Long. 13 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Head subbuccate, excavated above; clypeus transverse, rounded at the sides. Antennæ closely punctured. Thorax closely punctured, the sides wrinkled. Scutellum but little raised above the mesonotum, not much longer than broad, rounded at the base and apex; the sides not clearly separated from the scutum, the disc sparsely punctured. Metanotum punctured at the base, the rest wrinkled and irregularly punctured; the areæ not quite clearly defined. Postscutellum longitudinally striated, obscurely punctured at the sides. Petiole smooth, shining, the sides margined. Abdominal segments 2–4 closely, apical faintly, punctured; the base of the second segment reticulate-striate. Gastrocœli large, deep, smooth, and shining. Legs long, the posterior pair being longer than the body; the four posterior coxæ more or less ferruginous above; the anterior and the middle trochanters more or less black. The first seven joints of the antennæ are ferruginous, the eighth to the fourteenth yellow, the rest black; the third joint is not much longer than the fourth. The costa, except at the extreme apex (which is testaceous), is black. The bases of the second and third abdominal segments are black; the centre of the fourth segment broadly, and the apical one also more or less, black. Areolet deltoidiform.

53. **Ichneumon munerosus.** (Tab. VII. fig. 10.)

Ferrugineus; apice antennarum, femoribus posticorum apice tibiisque posticis (basi excepta) nigris; tarsis posticis flavis; alis hyalinis, fusco-bifasciatis, nervis flavis. ♂.

Long. 15 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Head and thorax closely but not strongly punctured, covered with a white, partly fuscous, pubescence. Head not very robust, rather long in front, the face projecting

in the middle; behind it is entirely black; the ocelli are in a black spot, and from this a thin black line runs to the black excavated part over the antennæ. The orbits of the eyes are faintly yellowish. Mandibles yellowish laterally, their apices blackish. Scutellum not very much raised over the mesonotum, but considerably raised above the postscutellum; covered with long fuscous hair. The metathorax has a gradually rounded slope to the petiole, and is covered with a silvery white pubescence. Metathoracic areæ entirely obliterated. The sutures of the pleuræ, and the metasternum, are black. Petiole long, slender, not much dilated at the apex, smooth, shining, and impunctate; the rest of the abdomen is smooth, shining, and scarcely punctured. Antennæ stout, nearly as long as the thorax and abdomen together, tapering gradually towards the apex, covered with a microscopic pile; third joint distinctly longer than the fourth. Areolet square above, beneath but slightly angled in the middle. The apices of both wings are black; in the anterior pair a yellow band runs obliquely from the stigma to the apical dark cloud, and there is another band before the middle. Legs long.

54. **Ichneumon guatemalensis.** (Tab. VII. fig. 20.)

Ferrugineus; coxis, femoribus, abdominis dorso pro majore parte apiceque antennarum nigris; medio antennarum tibiisque proparte flavis; alis flavo-hyalinis, costa et stigmate testaceis. ♀.

Long. 14 millim.

Hab. Guatemala, Purula in Vera Paz (*Champion*).

Head wrinkled, subbuccate, excavated above; antennæ covered with white hairs; eyes margined on the inner side, a furrow surrounding them on the outer side. Clypeus rounded at the sides, transverse at the apex; a large fovea on either side above. Thorax closely punctured above, the sides wrinkled, obscurely reticulated at the edges. Scutellum moderately elevated, a deep depression at the base, which is slightly rounded, the sides straight; closely punctured. Scutum at the sides of the scutellum striated, but not throughout. Postscutellum longitudinally striated, the sides punctured. Metanotum closely and irregularly reticulated, the areæ distinct. Petiole smooth, shining, the apex hollow and reticulated, margined at the sides. The other abdominal segments closely punctured; the apex faintly punctured, subovate; segments seven and six together nearly as long as the fifth, which is about one fourth shorter than the fourth; second segment one third longer than the third. The base of the antennæ to the sixth joint ferruginous; joints 6–18 yellow, inclining to ferruginous at the base and apex; the second joint is not much longer than the third, which is a little longer than the fourth. The vertex is for the most part black in the centre; the greater part of the mesonotum on either side of the scutellum, the base of the metanotum and its postmedian area, the sutures of the pleuræ, the petiole [except at the extreme apex], and the abdominal segments [except at the apex], the coxæ and femora, black. The tibiæ are ferruginous at the base all round; the anterior pair are yellow in front and behind not far from the base, the rest being ferruginous; the middle pair have a yellow band in front of the middle; and the

posterior pair are yellow (except at the extreme base), and have a broader ferruginous space at the apex. On all parts of the body the black runs into ferruginous; on either side, at the apex, the postpetiole is yellowish, as is also the apex of the second segment at the side. Legs robust. Anterior tibiæ curved at the base. Areolet broad above, but the lateral nervures still converging; the recurrent nervure is received a little beyond the middle.

55. **Ichneumon opiparus.**

Brunneo-rufus; antennarum scapo medio, abdominis segmentis 1°–3ᵐ apice tibiarumque dimidio basali, flavis; alis flavo-hyalinis, stigmate testaceo. ♀.
Long. 14 millim.

Hab. Mexico (*Bilimek*).

Head and thorax opaque, coarsely granulated, closely covered with a pale pubescence; clypeus strongly punctured, foveate at the base on either side, the part above it broadly projecting in the middle. Scutellum slightly elevated above the mesonotum, clearly raised from the sides, carinate at the base, longer than broad, narrowed towards the apex, which has a gentle slope. Metathorax rugose; supramedian area distinct, longer than broad, narrowest at the apex; the other areæ not defined, except indistinctly at the base; the apex has an almost perpendicular slope, and is hollowed in the centre; the lateral tubercles blunt, but distinct. The centre of the posterior part of the metathorax is brownish red like the rest of the body (the red forming a broad straight line); on either side of this, and extending a little on to the pleuræ, the colour is pale yellow. Petiole black, smooth, and shining; the carinæ well defined at the apex; postpetiole longitudinally and strongly striated. The rest of the abdomen is finely and closely punctured; the base of the second segment longitudinally striated. Gastrocœli broader than long, shining and aciculate in the middle. The apices of the first, second, and third segments are yellow, the remaining part for the greater extent black; the apical segments are obscure dull red. The pronotum is narrowly edged with obscure yellow. The antennæ beyond the broad yellow portion are almost black. The yellow on the four anterior tibiæ is not so distinct behind as it is on the front; the sutures of the pleuræ are yellowish for the most part. Areolet 5-angled, broad above, the lateral nervures but slightly converging. The body is more densely pilose and more opaque than in the preceding species.

56. **Ichneumon tepidus.**

Sordide rufus; sterno abdominisque segmentis basi late nigris; alis flavo-fumatis, nervis testaceis. ♂.
Long. 15 millim.

Hab. Mexico (*Bilimek*).

Head (except the face) and thorax opaque, closely punctured and covered with a dense pale pubescence. Pleuræ longitudinally punctured, the punctures almost forming striations. The basal half of the antennæ, the four anterior legs, the basal half of the hind tibiæ, the hind tarsi, and the apices of the first to the fourth (the second very

broadly) abdominal segments rufous, running, however, imperceptibly in some places, into the dark brownish-red colour of the body; this last colour again on the thorax and head running into black. The antennæ are scarcely so long as the abdomen and thorax together; the joints are not much serrated. Metathorax coarsely punctured, the punctures forming irregular reticulations at the base; the apex has a rounded and gradual slope; the areæ are not clearly defined, the keels running into and becoming confused with the punctuation; the sides are light rufous, the centre darker; there are no lateral tubercles. The sides of the postpetiole are punctured, the centre longitudinally striated. The rest of the abdomen finely and closely punctured. Areolet 5-angled, longish; the sides converging towards the top.

I. tepidus is a very close ally of *I. opiparus*, but the latter may be known from it by the apex of the metathorax having an abrupt slope (not rounded at the upper part as in *I. tepidus*), the centre too being distinctly hollow. In *I. tepidus* the punctuation is stronger over all the body; the wings clearer; the areolet compared to its breadth shorter, and wider at the upper part; and the pubescence is denser.

57. **Ichneumon sallæi.**

Niger; facie, orbitis oculorum, scutello pedibusque rufo-flavis; coxis trochanteribusque flavis; femoribus posticis fere totis, apice tibiarum coxisque posticis, nigris; abdomine fulvo, segmentis 3°–5^{m} margine basali basique nigris; alis flavo-fumatis, costa et stigmate fulvis. ♂.

Long. fere 16 millim.

Hab. Mexico (*Sallé*).

Head and thorax covered with white glistening hair. Vertex coarsely punctured, face obscurely aciculated. Above the antennæ the front is deeply excavated, smooth, and shining; below the antennæ the head is entire fulvous yellow; on each side of the clypeus above is a round fovea; the yellow border along the eyes scarcely reaches to the ocelli. Scape yellow beneath, black above; [flagellum broken off]. Pronotum projecting, the side of the collar hollow, bordered behind; the middle of the pronotum fulvous above. Thorax coarsely punctured. Scutellum raised, smooth, and shining; subtruncated before and behind, much broader behind than at the apex. Metathorax with a gradual slope, and hollow in the middle behind. Petiole shining, faintly aciculated; the apex with a few punctures; the centre hollow, the hollow carinated, the keels extending to near the apex. Abdomen obscurely aciculated. Gastrocœli broad, large, finely aciculated; the bands on the third, fourth, and fifth segments are broad. The coxæ (especially the posterior pair) are punctured, but not very closely; the sides hollow and shining; the anterior pair black above and behind. The posterior trochanters are black at the base on the inner side.

It is possible this may be the male of *I. illacessitus*, but, apart from the difference in the coloration of the posterior legs, the four anterior coxæ are yellow. The scutellum is longer compared to its width, and narrower at the apex. The petiole is not so shining above, and it is, if anything, longer, and more pubescent.

58. **Ichneumon illacessitus.** (Tab. VII. fig. 21.)

Niger; antennis (apice excepto) pallide rufis; scutello et postscutello flavis; facie, orbitis oculorum, abdomine (basi et segmentis 3°–4ᵐ margine basali exceptis), pedibus (coxis exceptis) rufis; alis flavo-hyalinis, tegulis, costa stigmateque luteis, nervis pallide testaceis. ♀.

Long. 12 millim.

Hab. Mexico, Ciudad in Durango, 8100 feet (*Forrer*).

Antennæ stout, involute; beyond the middle the red colour becoming much paler. Head large, buccate, coarsely punctured; above covered with short, thick, blackish hairs; the face with white glistening hair; there is a fovea on either side of the clypeus above; the front immediately above the antennæ is deeply excavated, smooth and shining, the centre of the hollow aciculated; the red border along the orbits extends to the ocelli; immediately below the antennæ there is a small black space, the remaining portion below this is red. Thorax opaque, coarsely punctured all over, covered with a white glistening pile. Prothorax projecting in front, with a distinct neck separated from the part behind, which rises gradually from it; the sides hollowed in front; the centre of the pronotum red. Scutellum flat, truncated behind, broadly rounded in front, broader than long. Metathorax with a gradual slope to the apex, which is almost perpendicular and hollow in the centre. Upper median area longer than broad, the sides nearly straight; lower area scarcely defined. The other areæ indistinct. Petiole aciculated and punctured at the sides and apex; the centre at the base hollow, smooth, and shining; this channel with the sides carinate, the keels extending to the apex, but becoming less distinct as that is reached. The abdomen is aciculated and covered with pale pubescence from the second segment; second segment with a well-defined margin at the base, the margin not quite extending to the middle, where it becomes confluent with the rest of the segment; separated from the petiole by a deep groove. Gastrocœli longish, narrow, striated. Legs (especially the femora) stout; tarsi covered beneath with stiff hairs; coxæ punctured; anterior trochanters black. Areolet 5-angled, large; the upper side barely one half of the length of the lower side, which is not acutely angled.

59. **Ichneumon turpiculus.** (Tab. VII. fig. 22.)

Niger; facie, ore, palpis, scapo, pedibus anterioribus (basi excepta), trochanteribus posticis, femorum posticorum basi, tibiarum posticarum dimidio basali, tarsis, scutello metanotoque postice, flavis; abdomine ferrugineo, basi segmentis 1°–5ᵐ nigris; alis flavo-hyalinis, stigmate fulvo. ♂.

Long. 17 millim.

Hab. Mexico, Puebla (*Bilimek*).

Antennæ stout, tapering at the apex, covered with a microscopic pile, the third joint nearly as long as the two following joints together; the scape broadly marked with black above. Face flat, but slightly projecting in the middle at the upper part. Mandibles yellow, black at the apex. The eyes are bordered on the inner side to near the ocelli. The head is covered with large punctures and with longish hair, and retreats

behind the eyes. Thorax coarsely punctured, and covered with a pale pubescence. Scutellum flat, narrowed considerably behind, where it is truncate. Metathorax depressed in the centre, the areæ all distinct—the supramedian a little longer than broad, and almost truncate at the base and apex; postero-median all present, the central with straight sides; the portion behind the apex of the supramedian is yellow to the extreme apex of the metanotum. The petiole is black, as is also the base of the postpetiole; it is longitudinally striated, and yellow at the apex. Abdomen closely punctured, its apex rather blunt; the black band on the second segment is behind the gastrocœli, which are shallow and indistinct, and is less distinct than upon the others, being almost divided into three; the bands on the third and fourth occupy nearly half the segment, on the fifth more than the half. The tegulæ and a spot in front, the tubercle below them, and the prothorax in front above are clear yellow. Areolet 5-angled, the sides narrowing towards the upper part.

60. **Ichneumon sublutus.**

Hab. Mexico (*Sallé*).

In coloration this species agrees with the preceding, except that the antennæ have a broad reddish band in the middle. The mark on the metathorax is ferruginous, not yellow, the apex of the postpetiole being also of this colour. The four front coxæ are entirely yellow behind. The scutellum is broader than long, not longer than broad, as in *I. turpiculus*. The thorax is not so densely pilose. The gastrocœli are more distinct, transverse, and finely aciculated; and there is no black on the second segment. The fifth and following segments are missing in the specimen (♂) before me. Another good mark of distinction is that the third joint of the antennæ is not much longer than the fourth.

A smaller species than *I. turpiculus*.

61. **Ichneumon multiplagiatus.** (Tab. VIII. fig. 5.)

Niger, flavo-maculatus; abdomine rufo, basi nigro et flavo maculato; pedibus flavo-testaceis, femoribus tibiisque nigro-lineatis; alis hyalinis, stigmate testaceo. ♀.
Long. 15 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Closely punctured, but not strongly on the head and thorax. Antennæ stout, semi-involute, a little thickened and compressed beyond the middle. Front projecting in the centre; clypeal foveæ large and deep, a shallow furrow joining them. Eyes bordered all round. Hollow above the antennæ deep, smooth, shining, black, the black continued as a broad band to the back of the head, which is entirely of that colour. There is a broad black band on the pronotum and on the side of the prosternum. Mesonotum black, except two straight narrow lines running from the middle to the pronotum, and two curved ones from the scutellum to the tegulæ. Scutellum flat, broad, not much longer than broad, and not much narrowed towards the apex; black, the sides and apex bordered with yellow; there are two yellow marks at the base, joining the above-

mentioned lateral lines. On the mesopleuræ is a large black mark under the wings, with a large yellow space in its centre. There is a small black mark at the apex of the mesosternum; the sutures joining the meso- with the pro- and metathorax are broadly black. Metanotum black, except two square marks at the base touching the suture, where they are prolonged a little laterally, and a longish mark on either side of the lower median area which bounds them. A large and somewhat roundish mark, bounded with black, on the metapleuræ. The upper median area smooth, shining, impunctate, united to the lower median area, the sides of which are distinct. Petiole hollow in the centre, the sides keeled; the keels continued to the middle of the post-petiole, which is coarsely punctured; black, except a large yellow mark on either side at the apex. Abdomen coarsely and longitudinally punctured; the second segment almost striated, its basal three fourths black; the apex reddish, yellowish at the sides; the basal half of the third segment black, the rest of which and the remaining segments reddish; the segments are a little contracted at the base; the apex acute, pilose; the sheath of the ovipositor black. The four anterior legs are entirely yellow on the underside; the tarsi inclining to fulvous; the tibiæ black above; the femora also black, and with a longish clear yellow line in the centre of the black part. The posterior femora are broadly black above, yellow like the anterior pairs in the centre, and black also at the apical half on the underside; the apical half of the tibiæ black on the outer side; for the rest, as also the hind tarsi, fulvous, inclining to yellowish. Coxæ marked (slightly on the front pairs) with black on the outer side. The trochanters black at the base; the hind pair also at the apex. Areolet 4-angled, triangular above.

The male has the antennæ without the white ring found in the female, and the black on the legs is more irregularly distributed; the abdominal segments are black, reddish yellow at the apex, the two apical ones entirely reddish.

62. **Ichneumon suffrageneus.** (Tab. VIII. fig. 13.)

Niger; pleuris pro parte, scutello metanotoque (maculis 2 basalibus exceptis) flavis; alis hyalinis, stigmate nigro. ♀.
Long. 19 millim.

Hab. GUATEMALA, Zapote (*Champion*).

Antennæ nearly as long as the body. Head slightly punctured; palpi, mandibles, clypeus, face, and orbits broadly (but the yellow is not continuous, being interrupted a little near the ocelli and behind) yellow. Thorax slightly punctured. Prosternum, a line on the pronotum, the tegulæ, the tubercle below them, two marks in the centre of the mesonotum, scutellum, postscutellum, sternum, the greater part of the mesopleura (all below the hollow, except where it projects a little at the head of the latter), a mark under the hind wings, a large mark on the metapleura, a small mark at the side near the base of the metanotum (curving round the spiracle), and a band down the centre [this is continued to the apex, and laterally from the middle], yellow. Scutellum large, flat, broad, with some shallow punctures; at the apex is a transverse furrow, behind

which the scutellum is narrowed. Mesonotum strongly punctured, the middle transversely striated; areæ obsolete; the apex but very slightly hollowed in the middle. Petiole smooth, shining; postpetiole punctured, longitudinally striated. Gastrocœli small, yellow. Abdominal segments longitudinally punctured.

63. **Ichneumon opiniosus.** (Tab. VIII. fig. 11.)

Flavus; pronoto (linea laterali excepta) mesonoto maculisque 2 metanoti nigris; pedibus fulvo-testaceis, femoribus supra nigro-lineatis; alis hyalinis, stigmate testaceo. ♀.
Long. 18 millim.

Hab. Mexico, Valladolid in Yucatan (*Gaumer*).

Antennæ porrected, pilose; basal joints of the flagellum longer than broad, the apical joint broader than long, semidentate. Head punctured, the vertex and hinder part black; clypeal foveæ distinct; the clypeus projecting out from the front at the base and forming a semicircular ridge uniting the foveæ, the apex a little projecting. Thorax punctured; prosternum, a line on the pronotum, tegulæ, two short lines on the middle of the mesonotum, scutellum, the suture of mesonotum, postscutellum, pleuræ (except a curved line below the wings), and sternum, yellow. Metanotum yellow, except two broad lateral marks, issuing from the base, and a mark in the centre, black. Scutellum with the sides and apex rather abrupt, the top flattish, punctured, but not closely. The apex of the metanotum is not much hollowed and is somewhat abrupt; tubercles distinct. Petiole smooth, shining, postpetiole punctured; the rest of abdomen closely punctured. Gastrocœli longer than broad, striated.

64. **Ichneumon trunculentus.** (Tab. VIII. fig. 12.)

Long. 18 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

In coloration nearly identical with *I. opiniosus*, but wanting the two yellow marks in the middle of the mesonotum, and having instead one at the side of the tegulæ; the antennæ shorter; the scutellum and the base of the metanotum impunctate; the basal segments longer and narrower; the apex of the metathorax not hollowed at the sides, &c.

Antennæ porrected, pilose. Head behind and on the vertex black; clypeal foveæ deep; face rather flat, obsoletely punctured. Thorax smooth, shining, almost impunctate, densely pilose. Prosternum, a line on the pronotum, the tegulæ and a broad mark at their side, the scutellum, postscutellum, sternum, pleuræ, and metanotum (except two large marks at the base), yellow. Scutellum with the sides abrupt, keeled; narrowed behind, longer than broad. Metathoracic areæ obsolete at the base, which is smooth, impunctate, and shining; the rest obscurely reticulated; the apex is not hollow and has a semi-perpendicular slope. Petiole smooth, shining, impunctate. Postpetiole black, except at the apex; the sides punctured. Gastrocœli shallow, longer than broad, impunctate. The abdominal segments punctured, except at the apex; black, except at the apex and beneath.

65. **Ichneumon democraticus.** (Tab. VIII. fig. 10.)

Niger; sterno, pleuris, macula mesonoti scutelloque, flavis; pedibus flavis, femoribus tibiisque supra nigro-lineatis; alis hyalinis, stigmate nigro, medio testaceo. ♀.
Long. 16–17 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Head and thorax punctured. Metanotum transversely, the collar obliquely, striated; the pleuræ more strongly punctured than the upper part of the thorax, and covered with fuscous or fuscous-black pubescence. Antennæ semi-involute, as long as the abdomen and the metathorax together; a little thickened and compressed beyond the middle. The head is black in the centre above the antennæ, and entirely so behind; with a broad transverse furrow below the lower ocellus. The pronotum is broadly black in the centre; there is a longitudinal black mark below the tubercle under the tegulæ, and from it one of nearly equal length runs along the hollow in the mesopleura. The mesonotum is black save an indented mark on either side in front, a transverse mark (narrower in front and behind) in the centre, and two small marks in front of the scutellum. The scutellum and postscutellum are yellow; the former is longer than broad, narrower in the centre and at the apex, and slightly raised in the centre. The suture separating the meso- from the metanotum is black; on either side of the latter two large marks, double as long as wide, and bulging out in the middle, run from this suture to a little beyond the middle, and an oblique, narrower line runs from its basal third; at the extreme apex in the middle is a small triangular black mark. The metathorax has a gradual slope and has neither areæ nor tubercles. Petiole black beneath, yellow above; postpetiole black, strongly punctured. Abdomen strongly, longitudinally punctured; segments 2–5 with a broad black band, mostly narrowed at the base or apex; longer than the head and thorax together; the apex acute; the sheath of the ovipositor black, projecting. Gastrocœli shallow. On the four anterior femora, tibiæ, and tarsi there is a black line on the upper side, and broader one on the posterior femora and tibiæ and on the base of the tarsi. There is a broad, somewhat irregular mark in the centre of the posterior coxæ, this line-like mark being continued on to the basal part of the trochanter.

66. **Ichneumon valladolidensis.** (Tab. VIII. fig. 9.)

Niger; linea pronoti, pleuris pro majore parte, maculisque 2 magnis metanoti flavis; pedibus fulvo-flavis, apice femorum et tibiarum posticarum nigro. ♀.
Long. 13 millim.

Hab. Mexico, Valladolid in Yucatan (*Gaumer*).

Antennæ involute, thick. Head behind and the vertex broadly black; broad, punctured, shining; clypeal foveæ deep; clypeus with a small incision in the centre at the apex. Thorax punctured, but not deeply or closely. The edge of the pronotum broadly, the tegulæ, a large mark on the meso- and a smaller one on the metapleuræ, the scutellum, and the sides of the metanotum broadly, yellow. Scutellum broad, flat,

the sides keeled, the upper part with scattered punctures. Metathorax hollowed in the middle, the slope somewhat abrupt; lateral tubercles longish, acute; areæ defined, the supramedian broader than long, and with a short field at its base. The base of the metanotum shining, the sides punctured, the middle transversely striated. Petiole smooth, shining; postpetiole closely punctured. Gastrocœli shallow, broad, with some large striations at the base. The third and the base of the fourth segments of the abdomen closely punctured; the others impunctate, shining.

67. **Ichneumon subsecivus.** (Tab. VIII. fig. 7.)

Niger, nitidus; linea pronoti, sterno, pleuris, apice scutelli maculisque 4 metanoti, flavis; pedibus flavis, tarsis posticis fulvis; femoribus, tibiis anterioribus supra tibiisque posticis totis, nigris; alis hyalinis, apice fere fumatis, stigmate nigro. ♂.

Long. 13 millim.

Hab. GUATEMALA, Cubilguitz in Vera Paz (*Champion*).

Antennæ as long as the body. Head black; the mandibles, clypeus, front, and orbits broadly yellow; the front projecting a little, punctured; the apices of the mandibles black. Thorax black; a line on the edge of the pronotum, the prosternum, the tubercle below the tegulæ, a transverse mark below the front, and a perpendicular one below the hind wings, the lower part of the pleuræ and sternum, the tubercles in front of the scutellum, and a mark in front of these, the apex of the scutellum, the postscutellum, two marks at the base of the metanotum and two large ones at the apex extending from the spines (which are yellow), and two large marks on the metapleuræ, yellow. Mesonotum shining, with scattered punctures. Scutellum more strongly punctured than the mesonotum, broad, the sides projecting as strong keels above the surface. Metathorax strongly, transversely punctured; the apex rather abrupt and hollow in the centre; the spines large; the areæ mostly defined; the supramedian area horseshoe-shaped, shining, aciculate, and with a keel down its centre. Petiole and postpetiole shining, impunctate. Gastrocœli small, shining. Second and third segments of the abdomen longitudinally punctured, the third not so strongly; the other segments impunctate; the base of the petiole, the apex of the postpetiole and of all the other segments, yellow. Legs yellow; femora and tibiæ lined with black; the anterior tarsi above, and the middle ones wholly, black; the posterior tarsi fulvous; a small black mark on the middle coxæ, and a large one on the posterior coxæ joining the trochanters, which are entirely black. Areolet 4-angled, triangular above.

68. **Ichneumon yucatanensis.** (Tab. VIII. fig. 8.)

Niger; sterno, maculis 2 mesonoti, apice scutelli maculisque metanoti flavis; pedibus fulvo-flavis, femoribus tibiisque nigro-lineatis; alis hyalinis, stigmate nigro. ♀.

Long. 16 millim.

Hab. MEXICO, Valladolid in Yucatan (*Gaumer*).

Antennæ stout, involute; the third joint not much longer than the fourth; the scape shining, minutely punctured. Head broad, yellow, the vertex and behind black;

punctured, but not strongly. Thorax smooth, shining. Scutellum flat, longish; the sides semi-perpendicular; the upper part with some scattered punctures. A broad line on the edge of the pronotum, two short lines in the centre of the mesonotum, the tubercles in front of the scutellum, the apex of the latter, the suture of the mesonotum, and the postscutellum, yellow; the breast and a large mark on the mesopleuræ under the wings also yellow. The pleural suture of the meso- and metanotum crenulated. Metathorax broadly rounded, the centre at the apex deeply and broadly hollowed; the areæ distinct; the upper median area longer than broad, rounded at the base, transverse at the apex; the base shining, bearing scattered punctures, the middle transversely striated; the sides punctured. The lower portion of the metapleuræ broadly yellow; the edges of the areæ mostly lined with yellow, the postmedian very broadly. There are no tubercles, and the metathorax is densely covered with white hair. Petiole smooth, shining, keeled; postpetiole broad, finely punctured. Gastrocœli shallow, small, smooth, and shining. Abdomen closely, but not strongly, punctured; the apex very shining, impunctate, acute; the ventral surface and all the segments at the apex broadly yellow; in the centre of the second segment is a small yellow mark indented at the apex. On the hind coxæ there is a black mark at the base laterally, and there is another mark in front; the hind trochanters bear a black mark on the lower side; the anterior femora and tibiæ are lined above with black; the hind femora are broadly black above; the hind tibiæ at the apical half and the middle tarsi are black.

69. **Ichneumon opaculus.**

Ichneumon opaculus, Cresson, Proc. Acad. Phil. 1873, p. 115. no. 17[1] (♂, ♀).

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*).

70. **Ichneumon junceus.**

Ichneumon junceus, Proc. Acad. Phil. 1873, p. 116. no. 18[1] (♂).

Hab. Mexico, Cordova[1] (*Sumichrast*).

71. **Ichneumon zapotecus.**

Ichneumon zapotecus, Cresson, Trans. Amer. Ent. Soc. ii. p. 3[1] (♀); Proc. Acad. Phil. 1873, p. 116. no. 19.

Hab. Mexico, Cordova[1] (*Sumichrast*).

72. **Ichneumon encaustus.**

Ichneumon encaustus, Cresson, Trans. Amer. Ent. Soc. ii. p. 4 (♀); Proc. Acad. Phil. 1873, p. 116. no. 20[1] (♂, ♀).

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*).

73. **Ichneumon zacatecus.**

Ichneumon zacatecus, Cresson, Proc. Acad. Phil. 1873, p. 116. no. 21 [1] (♀).

Hab. Mexico, Orizaba [1] (*Sumichrast*).

74. **Ichneumon parredes.**

Ichneumon parredes, Cresson, Trans. Amer. Ent. Soc. ii. p. 4 [1] (♀); Proc. Acad. Phil. 1873, p. 117. no. 22.

Hab. Mexico, Orizaba [1] (*Sumichrast*).

75. **Ichneumon tepanecus.**

Ichneumon tepanecus, Cresson, Trans. Amer. Ent. Soc. ii. p. 5 [1] (♀); Proc. Acad. Phil. 1873, p. 117. no. 23.

Hab. Mexico, Orizaba, Cordova [1] (*Sumichrast*).

76. **Ichneumon subspinosus.**

Ichneumon subspinosus, Cresson, Trans. Amer. Ent. Soc. ii. p. 17 [1] (♂); Proc. Acad. Phil. 1873, p. 117. no. 24.

Hab. Mexico, Orizaba, Cordova [1] (*Sumichrast*).

Cresson thinks this may be the male of *I. tepanecus*.

77. **Ichneumon actuosus.**

Ichneumon actuosus, Cresson, Proc. Acad. Phil. 1873, p. 117. no. 25 [1] (♂).

Hab. Mexico, Orizaba [1] (*Sumichrast*).

78. **Ichneumon nestor.**

Ichneumon nestor, Cresson, Trans. Amer. Ent. Soc. ii. p. 12 [1] (♀); Proc. Acad. Phil. 1873, p. 117. no. 26.

Hab. Mexico, Cordova [1] (*Sumichrast*).

79. **Ichneumon toros.**

Ichneumon toros, Cresson, Trans. Amer. Ent. Soc. ii. p. 14 [1] (♀); Proc. Acad. Phil. 1873, p. 117. no. 27.

Hab. Mexico, Cordova [1] (*Sumichrast*).

80. **Ichneumon famelicus.**

Ichneumon famelicus, Cresson, Trans. Amer. Ent. Soc. ii. p. 14 [1] (♂); Proc. Acad. Phil. 1873, p. 117. no. 28.

Hab. Mexico, Cordova [1] (*Sumichrast*).

81. **Ichneumon tenebricus.**

Ichneumon tenebricus, Cresson, Trans. Amer. Ent. Soc. ii. p. 15 (♂, ♀); Proc. Acad. Phil. 1873, p. 117. no. 29 [1].

Hab. Mexico, Orizaba, Cordova (*Sumichrast*), Mirador [1] (*Dr. Sartorius*).

82. **Ichneumon intentus.**

Ichneumon intentus, Cresson, Trans. Amer. Ent. Soc. ii. p. 15 (♂); Proc. Acad. Phil. 1873, p. 117. no. 30[1] (♂, ♀).

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*).

This and the preceding species are said to be common, and to vary in length from 4½ to 7 lines.

83. **Ichneumon gracilentus.**

Ichneumon gracilentus, Cresson, Trans. Amer. Ent. Soc. ii. p. 16[1] (♀); Proc. Acad. Phil. 1873, p. 118. no. 31.

Hab. Mexico, Cordova[1] (*Sumichrast*).

84. **Ichneumon arista.**

Ichneumon arista, Cresson, Trans. Amer. Ent. Soc. ii. p. 16[1] (♂); Proc. Acad. Phil. 1873, p. 118. no. 32.

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*)

85. **Ichneumon maritus.**

Ichneumon maritus, Cresson, Trans. Amer. Ent. Soc. ii. p. 16[1] (♂, ♀); Proc. Acad. Phil. 1873, p. 118. no. 33.

Hab. Mexico, Cordova[1] (*Sumichrast*).

86. **Ichneumon tuxtla.**

Ichneumon tuxtla, Cresson, Trans. Amer. Ent. Soc. ii. p. 17[1] (♀); Proc. Acad. Phil. 1873, p. 118. no. 34.

Hab. Mexico, Cordova[1] (*Sumichrast*).

87. **Ichneumon solitarius.**

Ichneumon solitarius, Cresson, Proc. Acad. Phil. 1873, p. 118. no. 35[1] (♂).

Hab. Mexico, Orizaba[1] (*Sumichrast*).

88. **Ichneumon prolixus.**

Ichneumon prolixus, Cresson, Proc. Acad. Phil. 1873, p. 118. no. 36[1] (♂).

Hab. Mexico, Cordova[1] (*Sumichrast*).

89. **Ichneumon cholula.**

Ichneumon cholula, Cresson, Trans. Amer. Ent. Soc. ii. p. 5[1] (♀); Proc. Acad. Phil. 1873, p. 119. no. 37.

Hab. Mexico, Cordova[1] (*Sumichrast*).

90. **Ichneumon zaptlanus.**

Ichneumon zaptlanus, Cresson, Proc. Acad. Phil. 1873, p. 119. no. 38[1] (♀).

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

91. **Ichneumon excuratus.**

Ichneumon excuratus, Cresson, Proc. Acad. Phil. 1873, p. 119. no. 39[1] (♂).

Hab. MEXICO, Cordova [1] (*Sumichrast*).

92. **Ichneumon toluca.**

Ichneumon toluca, Cresson, Trans. Am. Ent. Soc. ii. p. 6[1] (♂); Proc. Acad. Phil. 1873, p. 120. no. 40.

Hab. MEXICO, Cordova [1] (*Sumichrast*).

93. **Ichneumon chalco.**

Ichneumon chalco, Cresson, Trans. Am. Ent. Soc. p. 7[1] (♂); Proc. Acad. Phil. 1873, p. 120. no. 41.

Hab. MEXICO, Cordova [1] (*Sumichrast*).

Cresson thinks this may be a variety of *I. toluca*.

94. **Ichneumon inoratus.**

Ichneumon inoratus, Cresson, Proc. Acad. Phil. 1873, p. 120. no. 42[1] (♂).

Hab. MEXICO, Mirador [1] (*Dr. Sartorius*).

95. **Ichneumon mendicus.**

Ichneumon mendicus, Cresson, Proc. Acad. Phil. 1873, p. 120. no. 43[1] (♀).

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

96. **Ichneumon ignarus.**

Ichneumon ignarus, Cresson, Proc. Acad. Phil. 1873, p. 121. no. 44[1] (♂).

Hab. MEXICO, Cordova [1] (*Sumichrast*).

97. **Ichneumon placitus.**

Ichneumon placitus, Cresson, Proc. Acad. Phil. 1873, p. 121. no. 45[1] (♀).

Hab. MEXICO, Mirador [1] (*Dr. Sartorius*).

98. **Ichneumon epicus.**

Ichneumon epicus, Cresson, Proc. Acad. Phil. 1873, p. 121. no. 46[1] (♂).

Hab. MEXICO, Mirador [1] (*Dr. Sartorius*).

99. **Ichneumon nigrofemoratus.**

Ichneumon nigrofemoratus, Cresson, Proc. Acad. Phil. 1873, p. 122. no. 47[1] (♂).

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

100. **Ichneumon abjectus.**

Ichneumon abjectus, Cresson, Proc. Acad. Phil. 1873, p. 122. no. 48[1] (♂).

Hab. Mexico, Cordova[1] (*Sumichrast*).

101. **Ichneumon cephalotes.**

Ichneumon cephalotes, Cresson, Proc. Acad. Phil. 1873, p. 123. no. 49[1] (♀).

Hab. Mexico, Mirador[1] (*Dr. Sartorius*).

102. **Ichneumon chichimecus.**

Ichneumon chichimecus, Cresson, Trans. Am. Ent. Soc. ii. p. 19[1] (♂); Proc. Acad. Phil. 1873, p. 123. no. 50.

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*).

103. **Ichneumon teres.**

Ichneumon teres, Cresson, Trans. Am. Ent. Soc. ii. p. 18[1] (♂); Proc. Acad. Phil. 1873, p. 123. no. 51.

Hab. Mexico, Cordova[1] (*Sumichrast*).

104. **Ichneumon amecus.**

Ichneumon amecus, Cresson, Proc. Acad. Phil. 1873, p. 123. no. 52[1] (♂).

Hab. Mexico, Mirador[1] (*Dr. Sartorius*).

105. **Ichneumon parandus.**

Ichneumon parandus, Cresson, Proc. Acad. Phil. 1873, p. 124. no. 53[1] (♂).

Hab. Mexico, Orizaba, Cordova (*Sumichrast*), Mirador[1] (*Dr. Sartorius*).

106. **Ichneumon abaculus.**

Ichneumon abaculus, Cresson, Proc. Acad. Phil. 1873, p. 124. no. 54[1] (♂).

Hab. Mexico, Orizaba[1] (*Sumichrast*).

107. **Ichneumon centralis.** (Tab. VIII. fig. 15.)

Flavus; vertice, mesonoti lineis 4, metanoti 3, abdominis segmentis 1°–5ᵐ basi læte, femoribus anterioribus supra, posticarum basi et apice, tibiarum posticis apice maculaque posticarum coxarum, nigris; basi antennarum brunnea, medio flavo, apice nigro; alis flavo-hyalinis, costa et stigmate testaceis. ♀.

Long. 13 millim.

Hab. Costa Rica, Cache (*Rogers*).

Head subbuccated; the eyes surrounded by a narrow furrow; face obscurely punctured, the centre of the vertex transversely striated, the sides with scattered punctures; front excavated above the antennæ, smooth, shining; at the side above the clypeus is a deep round fovea, and over the clypeus and going through the fovea is a semicircular suture; clypeus slightly incised at the apex. Antennæ stout, involute; second joint one third longer than the third, which is scarcely one fourth longer than the fourth.

Thorax (especially the mesonotum) punctured; the pleuræ obscurely, transversely striated. Scutellum slightly elevated, much broader at the base than at the apex, the sides curved, the base and apex scarcely truncate; the upper part bearing some slight scattered punctures, the base almost impunctate. At the side of the scutellum there are five or six conspicuous striations running from it to a carina which proceeds from the base of the posterior wings to the postscutellum; a similar carina runs from the wings to the apex of the postscutellum, the space enclosed being hollow and striated. Metanotum punctured, the centre coarsely shagreened; upper median area a little longer than broad. Petiole smooth, shining, the sides margined and hollowed, and with a row of punctures below the upper margin. Postpetiole closely, finely, and longitudinally striated, punctured laterally. The remaining abdominal segments closely punctured, the punctuation becoming weaker towards the apex; the second segment at the base striated and reticulated, especially at the sides; the segments constricted somewhat at the base; the apex bluntly rounded, and wider than the base of the second segment, which is one fourth longer than the third, this again being longer than the fourth; the fifth segment is much shorter than the fourth, and the sixth and seventh together are not half the length of the fifth. Gastrocœli almost obsolete. Legs robust; anterior tarsi indented at the base. The basal joint of the antennæ is yellow, brownish above; joints two to seven brownish beneath and at the sides, blackish in the centre above, eight to fifteen clear yellow, the rest black. The vertex in the centre is black, the black becoming narrowed towards the antennæ; and there is a black transverse line behind the ocelli joining the eyes; the extreme back of the head is black. On the pronotum there is a black line in front, close to the head; the sides of the mesonotum are for the most part black at the junction with the pronotum; there is a ∩-shaped mark along the side originating close to the scutellum, and, in its centre, a broad longitudinal line runs from near its apex to the end of the mesonotum. The sutures of the pleuræ are more or less black, as are also the sides of the scutellum and postscutellum; the base of the metanotum, a curved line along the spiracular area, and the whole of the median areæ are black. The petiole is black above to the postpetiole, so is more than half of the second and third segments, the black being transverse at the apex; the basal halves of the fourth and fifth segments are also black, but the black is rounded off (especially on the fifth) at the apex. The extreme base of the coxæ, a mark at the apex of them all (that on the posterior pair being much the largest), a line along the top of all the femora, a short line beneath at the apex, and a shorter one (forming a ring) at the base of the four posterior pairs, the inner side of the middle tibiæ, and the hind tibiæ at the apex all round, black. The tarsi incline to ferruginous, especially at the apex. Areolet 5-angled, broad above.

108. **Ichneumon parsimonicus.** (Tab. VII. fig. 23.)

Flavo-testaceus; vertice, antennis, lineis 3 mesonoti, 1 metanoti, segmentis abdominis basi, linea femorum posticorum, tibiarum posticarum apice tarsisque posticis, nigris; alis hyalinis, stigmate testaceo. ♂.

Long. 13 millim.

Hab. Mexico (*Sallé*).

Head and mesonotum punctured, but not strongly, scarcely dilated behind; the centre of the vertex is black to near the antennæ, and behind the black is prolonged, on either side, to the eyes. The outer black lines on the mesonotum are united behind, and in front they are united to a narrow line which extends backwards to the tegulæ and beneath the latter there are two small black lines. The suture between the meso- and metanotum is black nearly all round, and there is a transverse line behind the post-scutellum; the central line on the metanotum is narrow. Scutellum raised, the sides carinate. Metathoracic areæ clearly defined; without lateral tubercles. Petiole smooth, shining, impunctate, the sides carinate, a longish fovea at the apex; postpetiole punctured, the sides depressed above. Gastrocœli indistinct. Abdominal segments strongly punctured; the second and third segments have the basal half black, and the black bands are of nearly equal width throughout; the black on the other segments extends beyond the middle at the centre, but is contracted at the sides. There is a small black mark on the inner side of the posterior coxæ at the base, and another at the apex on the outer side; the line over the posterior femora is fuscous rather than black. Areolet 5-angled, square above.

109. **Ichneumon abitus.**

Ichneumon abitus, Cresson, Proc. Acad. Phil. 1873, p. 125. no. 55[1] (♂).

Hab. Mexico, Cordova[1] (*Sumichrast*).

110. **Ichneumon durus.**

Ichneumon durus, Cresson, Proc. Acad. Phil. 1873, p. 125. no. 56[1] (♂).

Hab. Mexico, Cordova[1] (*Sumichrast*).

111. **Ichneumon alvarado.** (Tab. VII. fig. 24.)

Ichneumon alvarado, Cresson, Trans. Am. Ent. Soc. ii. p. 7 (♂); Proc. Acad. Phil. 1873, p. 125. no. 57[1] (♂, ♀).

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*).

112. **Ichneumon decorosus.**

Ichneumon decorosus, Cresson, Trans. Am. Ent. Soc. ii. p. 8[1] (♂); Proc. Acad. Phil. 1873, p. 125. no. 58.

Hab. Mexico, Cordova[1] (*Sumichrast*).

113. **Ichneumon centrosus.**

Ichneumon centrosus, Cresson, Trans. Am. Ent. Soc. ii. p. 8[1] (♂); Proc. Acad. Phil. 1873, p. 126. no. 59.

Hab. Mexico, Cordova[1] (*Sumichrast*).

114. **Ichneumon jugiosus.**

Ichneumon jugiosus, Cresson, Trans. Am. Ent. Soc. ii. p. 9 (♀); Proc. Acad. Phil. 1873, p. 126. no. 60[1] (♂, ♀).

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*).

115. **Ichneumon limitaris.**

Ichneumon limitaris, Cresson, Trans. Am. Ent. Soc. ii. p. 9[1] (♂); Proc. Acad. Phil. 1873, p. 126. no. 61.

Hab. Mexico, Cordova[1] (*Sumichrast*).

116. **Ichneumon tenuicornis.**

Ichneumon tenuicornis, Cresson, Trans. Am. Ent. Soc. ii. p. 9[1] (♂); Proc. Acad. Phil. 1873, p. 126. no. 62.

Hab. Mexico, Cordova[1] (*Sumichrast*).

117. **Ichneumon monitus.**

Ichneumon monitus, Cresson, Trans. Am. Ent. Soc. ii. p. 10[1] (♀); Proc. Acad. Phil. 1873, p. 126. no. 63.

Hab. Mexico, Cordova[1] (*Sumichrast*).

118. **Ichneumon motivus.** (Tab. VIII. fig. 16.)

Capite et thorace flavis, nigro maculatis; abdomine nigro-cæruleo; antennis nigris, annulo albo; pedibus flavis, anterioribus supra nigro lineatis, femoribus posticis (medio excepto), apice tibiarum tarsisque, nigris; alis hyalinis, stigmate fusco. ♀.

Long. 20 millim.

Hab. Mexico, Orizaba (*Bilimek*).

Antennæ not much longer than the abdomen, stout, semi-involute, shortly pilose, the third joint not much longer than the fourth; basal joints of the flagellum microscopically punctured; scape yellow beneath, more strongly punctured than the flagellum. Head broad, the front only slightly projecting; punctured most strongly on the vertex and front; eyes margined; clypeal foveæ large; vertex broadly and the posterior region black. Thorax stout, much broader than the abdomen, and also broader than the head, punctured. Scutellum flat, longer than broad, narrowed towards the apex, the sides not margined. The pleuræ, except a long black line immediately beneath the wings, a shorter one in the middle, and a large mark in front of the middle coxæ, yellow. Prothorax, except a transverse mark in front, and a large and somewhat triangular mark on the side, yellow. Mesonotum black, with two long yellow longitudinal lines in the centre, and a short one at the tegulæ; the tubercles in front of the scutellum, which is itself yellow (except a broad black line down the centre), and the postscutellum, yellow. Metathorax longish, with a gradual rounded slope, the middle but slightly hollowed;

areæ and tubercles obsolete; the extreme base is smooth and impunctate, beyond this smooth space it is for a short distance striated (the middle transversely, the sides longitudinally), the rest is punctured. The pleuræ are yellow, bordered all round with black; the spiracular area is yellow, black in the middle. The centre of the metanotum is black, broadly bordered with yellow, the yellow being continued up on either side of the apex of the supramedian area; the base is black. Petiole longitudinally striated, the striæ continued into the middle of the postpetiole, which is raised on either side and laterally depressed at the base; the sides and apex of the postpetiole punctured. Abdomen longish, becoming dilated to the fifth segment; the apex acute; the segments contracted at the base; strongly punctured; gastrocœli large, deep, transverse, broader than long, aciculate; the ventral surface is yellow to the base of the ovipositor, and with three broad black marks on either side. Legs stout. Coxæ large, especially the posterior pair; the two anterior pairs are entirely yellow; there is a large black mark on the posterior pair beneath at the base, and a narrower mark above, the extreme apex being also bordered with black. The four anterior legs are entirely yellow beneath, except a black mark at the base of the middle tibiæ; above they are lined with black, except a long yellow mark in the centre of the yellow on the femora and a small yellow line at the base of the middle tibiæ. The hind femora are yellow, black at the extreme base, and broadly black at the apex; hind tarsi and spurs entirely black. The anterior metatarsi are sharply curved at the base, the spurs being also curved. The middle femora are short and thick, and have a blunt keel on the underside; this keel projects at the apex and forms a leaf-like tooth. The middle tibiæ are narrow at the base, and have also a blunt tooth, beyond which the tibia thickens. Areolet 5-angled, converging above.

119. **Ichneumon beatus.** (Tab. VIII. fig. 17.)

Cæruleo; annulo antennarum, palpis, mandibularum basi, orbitis oculorum, tegulis, lineis pronoti tibiisque anticis, albis, posticis nigris; alis subfumatis, stigmate nigro-fusco. ♀.

Long. 14 millim.

Hab. Mexico, Takubaya (*Bilimek*).

Antennæ stout, involute, the third joint longer than the fourth. Head and thorax closely punctured. Scutellum apparently flat*; the tubercles in front of it white. Metathorax broadly rounded, but slightly hollowed in the centre at the apex; without tubercles; all the areæ distinct; upper median area harp-shaped, broader than long; the base striated, the apex and sides rugosely punctured. Petiole keeled, finely punctured; postpetiole reticulate-punctate in the middle, the sides finely punctured. Gastrocœli very broad and deep, finely aciculate. Abdomen with the second segment reticulate-striate in the middle, the sides coarsely punctured; the third segment coarsely and longitudinally striated in the middle, the sides coarsely punctured; the fourth

* The pin goes through it, so I am unable to describe it fully.

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segment shortly and longitudinally striated at the base, the sides punctured, but much less strongly so than the third; apical segments smooth, shining, almost impunctate. Areolet 5-angled, longish, narrowed above. Anterior tarsi obscure-white on the lower side, the tibiæ lined with blue behind.

120. **Ichneumon virescens.**

Ichneumon virescens, Cresson, Proc. Acad. Phil. 1873, p. 126. no. 64 (♀)[1].

Hab. Mexico, Mirador[1] (*Dr. Sartorius*).

121. **Ichneumon rixosus.**

Hoplismenus rixosus, Cresson, Trans. Am. Ent. Soc. ii. p. 20 (♀)[1].
Ichneumon rixosus, Cresson, Proc. Acad. Phil. 1873, p. 126. no. 65[2].

Hab. Mexico, Cordova[1 2] (*Sumichrast*).

122. **Ichneumon munitus.**

Hoplismenus munitus, Cresson, Trans. Am. Ent. Soc. ii. p. 21 (♂ ♀)[1].
Ichneumon munitus, Cresson, Proc. Acad. Phil. 1873, p. 127. no. 66[2].

Hab. Mexico, Orizaba, Cordova[1 2] (*Sumichrast*).

123. **Ichneumon propinquus.**

Hoplismenus propinquus, Cresson, Trans. Am. Ent. Soc. ii. p. 22 (♀)[1].
Ichneumon propinquus, Cresson, Proc. Acad. Phil. 1873, p. 127. no. 67.

Hab. Mexico, Cordova[1] (*Sumichrast*).

124. **Ichneumon picturatus.**

Hoplismenus picturatus, Cresson, Trans. Am. Ent. Soc. ii. p. 22 (♀)[1].
Ichneumon picturatus, Cresson, Proc. Acad. Phil. 1873, p. 127. no. 68.

Hab. Mexico, Cordova[1] (*Sumichrast*).

125. **Ichneumon dissonus.**

Hoplismenus dissonus, Cresson, Trans. Am. Ent. Soc. ii. p. 23 (♀)[1].
Ichneumon dissonus, Cresson, Proc. Acad. Phil. 1873, p. 127. no. 69.

Hab. Mexico, Cordova[1] (*Sumichrast*).

126. **Ichneumon minax.**

Hoplismenus minax, Cresson, Trans. Am. Ent. Soc. ii. p. 23 (♂)[1].
Ichneumon minax, Cresson, Proc. Acad. Phil. 1873, p. 127. no. 70[2].

Hab. Mexico, Orizaba, Cordova[1 2] (*Sumichrast*).

127. **Ichneumon limatus.**

Hoplismenus limatus, Cresson, Trans. Am. Ent. Soc. ii. p. 24 (♂)[1].
Ichneumon limatus, Cresson, Proc. Acad. Phil. 1873, p. 127. no. 71[2].

Hab. Mexico, Cordova[1 2] (*Sumichrast*).

Scutellum flat, scarcely raised above the scutum, broader than long, sharply and obliquely narrowed from the middle to the apex. Antennæ of the male as long as the head, thorax, and basal segment of the abdomen together; thick, compressed and dilated towards the apex, as in Joppa *female. Abdomen long, narrow, of nearly equal width from the second segment, the latter strongly longitudinally striated at the base; segments two and three with a longitudinal fold. Areolet 4-angled, triangular above. Apex of the clypeus rounded in the male.*

See Nos. 129, 134, 141, 145

128. **Ichneumon maculosus.** (Tab. VIII. fig. 6.)

Joppa maculosa, F. Smith, Descr. of New Species of Hymen. p. 233 (1879)[1].

Hab. Guatemala, San Gerónimo (*Champion*); Costa Rica, Volcan de Irazu 6000 feet[1] (*H. Rogers*).

128

Scutellum conical, the apex obtuse. See Nos. 134, 141, 145

129. **Ichneumon montezuma.**

Ichneumon montezuma, Cresson, Trans. Am. Ent. Soc. ii. p. 13 (♂)[1]; Proc. Acad. Phil. 1873, p. 127. no. 72.

Hab. Mexico, Cordova[1] (*Sumichrast*).

130. **Ichneumon exquisitus.** (Tab. VII. fig. 25.)

Ichneumon exquisitus, Cresson, Trans. Am. Ent. Soc. ii. p. 12 (♂ ♀)[1]; Proc. Acad. Phil. 1873, p. 127. no. 73.

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*); Guatemala, San Gerónimo (*Champion*).

131. **Ichneumon piliventris.** (Tab. VIII. fig. 19.)

Flavo-testaceus; antennis (scapo subtus excepto), linea media metanoti, geniculis posticis, tarsis posticis abdominisque segmentis basi, nigris; alis hyalinis, apice fumatis, nervis et stigmate nigris. ♂.
Long. 15 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Face smooth, shining, impunctate, pale yellow, projecting, bluntly keeled in the middle; clypeal foveæ large and deep; front deeply excavated above the antennæ, smooth and shining; vertex aciculated, obscure fulvous in the centre, punctured, the sides shining and impunctate. Thorax punctured, covered with a black pubescence, which is longest on the scutellum; the sutures black; a black mark in the middle of the pronotum, and two obscure blackish lines in front of the mesonotum, the latter almost obsolete. Scutellum elevated, a little broader than long, the sides and apex (especially the latter) almost perpendicular, the sides above obscurely margined; scutellar fovea at the base black, the deep lateral keels acute. Metathorax with two broad tubercles at the sides,

punctured, and with a large broad black mark in the middle, the base being rounded; the areæ obsolete. Petiole smooth, shining, impunctate; postpetiole shining, with a few obscure punctures at the apex. Remaining segments of the abdomen punctured, pilose, the pubescence on the apex being especially long; on the second segment there is, at the base, a broad black band, which narrows at the middle, then runs on either side along the gastrocœli, the base of which is black; on the third segment is a narrower black band; on the apical segments the basal band is obscure, if not obsolete, and the apex itself is almost fulvous, smooth, shining, and almost impunctate. Gastrocœli very broad, the bottom with large longitudinal striations; sides smooth, impunctate. Areolet 4-angled, triangular above.

In some examples the black basal band on the abdominal segments is broad and distinct on all the segments; others have the apex of the posterior tarsi black, and the line on the metanotum frequently small and obscure.

132. **Ichneumon notabilis.** (Tab. VIII. fig. 20.)

Flavo-testaceus; flagello antennarum, vertice, basi tarsorum anteriorum, geniculis posticis, tarsis posticis dimidioque apicali tibiarum posticarum, nigris; alis hyalinis, stigmate fusco, basi testaceo. ♂.
Long. 16 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Body covered with a short pubescence. Head and thorax closely but not deeply punctured, the former excavated above the antennæ, and with the vertex in the middle broadly, and the greater part behind, black. Mesonotum covered with a black pubescence, more or less blackish, especially in the centre, and semiopaque. Scutellum gibbous, broadly rounded at the base, narrower at the apex, the sides above margined. Metathorax with two large, acute tubercles; the sides projecting at the apex (which has a slight slope), thus making the centre hollow; the areæ obsolete, the surface subrugose. Petiole yellow for the greater part, smooth, shining, and with a longish hollow on either side at the apex; postpetiole punctured, the apex in the middle smooth, shining, and impunctate. Gastrocœli deep, aciculated, double as wide as long, and situated quite close to the base of the segment. Abdominal segments punctured, covered with a close pubescence; at the base of the third segment there is a small black mark, narrowed in the centre; a broader and wider mark on the next segment, a longer and narrower band on the following, and a shorter and broader one on the apical segment, all black. The apices of the wings are faintly clouded; the areolet sharply triangular above; the nervures black.

133. **Ichneumon abactus.**

Ichneumon abactus, Cresson, Proc. Acad. Phil. 1873, p. 127. no. 74[1] (♂).

Hab. Mexico, Mirador [1] (*Dr. Sartorius*).

Scutellum conical, the apex acute. See Nos. 128, 129, 141, 145

134. **Ichneumon ariel.** (Tab. VIII. fig. 14.)

Niger; facie, orbitis, annulo antennarum, maculis pleuralis, linea pronoti, scutello maculisque 2 metanoti, albis; pedibus testaceis, coxis posticis, femoribus posterioribus, tibiis posticis dimidio apicali tarsisque posticis (apice excepto), nigris. ♂.

Long. 16 millim.

Hab. GUATEMALA, Panima (*Champion*).

Antennæ nearly as long as the body. Head, except the vertex and behind, black; strongly punctured. Mesothorax opaque, very finely and closely punctured. Prosternum, a line on the pronotum, the tegulæ and the tubercle beneath them, the tubercles in front of the scutellum, the scutellum, the postscutellum, a large mark on the mesopleuræ close to the sternum, and the sides of the metanotum at the tubercles (which are very prominent and yellow), yellow. Scutellum sharply conical, closely punctured, and covered with longish hair. Metathorax more strongly punctured than the mesothorax, the middle transversely striated. Petiole smooth, shining, and impunctate, except at the apex; postpetiole punctured, finely and longitudinally striated at the apex. Abdominal segments very closely and strongly punctured, striated at the base of the anterior segments. Base and apex of the petiole, and the apices of the other segments, yellow.

135. **Ichneumon blandicus.**

Rufus; vertice, antennis, pronoto mesonotoque nigris; annulo antennarum, facie, pedibus anterioribus basi sternoque, albis; alis hyalinis, stigmate sordide rufo. ♂.

Long. 18 millim.

Hab. GUATEMALA, Purula (*Champion*).

Antennæ as long as the body, the apical and middle joints dentate, pilose; the scape beneath, and a narrow ring beyond the middle, white. Face strongly punctured, striated in the middle, only slightly projecting; apex of the clypeus sharply transverse; except the orbits on the outer side below the middle, the head is black above the antennæ. Mesonotum opaque, closely and rugosely punctured; pleuræ finely granulated. Scutellum strongly punctured, densely covered with long black hairs, conical, the apex ending in a distinct conical reddish point, the sides keeled. Metathorax rugose, the sides rugosely striated, covered with long pale hair; the upper median area not clearly defined; the apex gradually rounded; the spines long and acute. The prothorax, except on the lower side, and a line on the edge, is black; the mesonotum and scutellum black, except a mark at the tegulæ (which are black), and the base of the scutellar keels. Abdomen strongly and closely punctured; petiole shining, impunctate; gastrocœli obsolete. Legs longish; coxæ punctured; hind tarsi black, white at the apex. Areolet longish, 5-angled, the lateral nervures converging above.

136. **Ichneumon occiputalis.**

Hoplismenus occiputalis, Cresson, Trans. Am. Ent. Soc. ii. p. 24 (♂ ♀)[1].
Ichneumon occiputalis, Cresson, Proc. Acad. Phil. 1873, p. 127. no. 75[2].

Hab. Mexico, Orizaba, Cordova[1 2] (*Sumichrast*).

137. **Ichneumon esurialis.**

Hoplismenus esurialis, Cresson, Trans. Am. Ent. Soc. ii. p. 25 (♂ ♀)[1].
Ichneumon esurialis, Cresson, Proc. Acad. Phil. 1873, p. 128. no. 76[2].

Hab. Mexico, Orizaba, Cordova[1 2] (*Sumichrast*).

138. **Ichneumon scutellaris.**

Hoplismenus scutellaris, Cresson, Trans. Am. Ent. Soc. ii. p. 26 (♂)[1].
Ichneumon scutellaris, Cresson, Proc. Acad. Phil. 1873, p. 128. no. 77 (♂ ♀)[2].

Hab. Mexico, Orizaba, Cordova[1 2] (*Sumichrast*), Mirador[2] (*Dr. Sartorius*).

139. **Ichneumon similans.**

Ichneumon similans, Cresson, Proc. Acad. Phil. 1873, p. 128. no. 78 (♂)[1].

Hab. Mexico, Mirador[1] (*Dr. Sartorius*).

140. **Ichneumon acclivus.**

Hoplismenus acclivus, Cresson, Trans. Am. Ent. Soc. ii. p. 25 (♂)[1].
Ichneumon acclivus, Cresson, Proc. Acad. Phil. 1873, p. 128. no. 79.

Hab. Mexico, Cordova[1] (*Sumichrast*).

Scutellum much elevated, oblique, the apex with transverse edge.

See Nos. 128, 129, 134, 145

141. **Ichneumon aztecus.** (Tab. VIII. fig. 18.)

Ichneumon aztecus, Cresson, Trans. Am. Ent. Soc. ii. p. 20 (♂)[1]; Proc. Acad. Phil. 1873, p. 128. no. 80.

Hab. Mexico, Orizaba, Isthmus of Tehuantepec[1] (*Sumichrast*); Guatemala, San Gerónimo, Purula (*Champion*).

Head obscurely punctured, the front deeply excavated; the back of the head entirely and the vertex broadly black in the middle to the base of the antennæ. Thorax strongly punctured; a broad black line on either side of the pronotum; mesonotum entirely black, except two narrow lines in the middle; a roundish black mark at the side of the scutellum, and a thin black line along the base of the metanotum. Scutellum strongly gibbous, projecting into a narrow truncated point at the apex above, and covered (as is also the metathorax, and to a less extent the mesothorax) with long fuscous hair. Metathorax subrugose; the base, apex, and sides reticulated; the areæ obsolete; with a long blunt tubercle on either side. Petiole smooth and shining; the postpetiole

punctured. Gastrocœli large, moderately deep, aciculated, as long as broad. Abdomen with the middle of the second segment obscurely carinated on the back, the sides above a little depressed in the centre; the segments coarsely punctured; a small black mark at the extreme base of the petiole; the black mark on the second segment is produced to a point at the apex, that on the next two segments of nearly equal width throughout, on the fifth and sixth narrower at the side. Areolet sharply triangular above; the stigma obscurely fuscous in the centre.

142. **Ichneumon tragicus.**

Ichneumon tragicus, Cresson, Trans. Am. Ent. Soc. ii. p. 11[1] (♂); Proc. Acad. Phil. 1873, p. 128. no. 81.

Hab. Mexico, Cordova[1] (*Sumichrast*).

143. **Ichneumon lenis.**

Ichneumon lenis, Cresson, Trans. Am. Ent. Soc. ii. p. 19[1] (♀); Proc. Acad. Phil. 1873, p. 128. no. 82.

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*).

144. **Ichneumon infulatus.**

Ichneumon infulatus, Cresson, Trans. Am. Ent. Soc. ii. p. 12[1] (♀); Proc. Acad. Phil. 1873, p. 128. no. 83.

Hab. Mexico, Cordova[1] (*Sumichrast*).

Scutellum much elevated, depressed in the centre at the apex or bispinose.

145. **Ichneumon abnormis.**

Hoplismenus abnormis, Cresson, Trans. Am. Ent. Soc. ii. p. 26[1] (♀).
Ichneumon abnormis, Cresson, Proc. Acad. Phil. 1873, p. 128. no. 84.

Hab. Mexico, Cordova[1] (*Sumichrast*).

146. **Ichneumon orizabensis.** (Tab. VIII. fig. 21.)

Flavus; antennis nigris, albo annulato; vertice, pronoto, mesonoto pro majore parte, macula mesopleurali, maculis 2 metanoti, abdominis segmentis basi læte, femoribus supra, tarsis tibiisque posticis, nigris; alis hyalinis, nervis nigris. ♀.

Long. 15 millim.

Hab. Mexico, Orizaba (*Bilimek*).

Antennæ nearly as long as the thorax and abdomen together; dilated and compressed slightly beyond the middle, the apex much thinner; the sixth to the twelfth joints clear white; the third joint a little longer than the fourth. The hollow space above the antennæ is black, and the black proceeds up through the ocelli to the back of the head, which is, for the greater part, black behind. The vertex is somewhat depressed; below the ocelli there

are some transverse striations. The face projects in the centre; the projecting part is interrupted beyond the middle by a broad transverse hollow and ends at the base of the clypeus, which projects outwardly at the apex, thus forming a hollow. The foveæ at the sides of the clypeus are large and deep. Labrum projecting, semicircular at the apex, and covered there with longish hair. The entire head (except the hollow space above the antennæ) covered with distinct punctures. Thorax closely punctured. The pronotum is black, except round the edges, which are broadly yellow; on the mesonotum there are two yellow longitudinal lines in the centre, running from the pronotum to a little past the yellow tegulæ; the carinæ running to the scutellum are clear yellow at the base. The scutellum is yellow on its apical half and behind; the junction between the meso- and metanotum and the postscutellum are also yellow. Below the wings there is a broad black line, and the hollow in the centre of the mesopleura and the sutures are also black. On the metanotum is a broad black mark (narrowest behind) reaching from the base to the tubercles. The scutellum rises obliquely, narrowing gradually to the apex, which is slightly depressed in the centre. The scutellum itself is not keeled, but the keels at its base are broad. The keels on the median areæ are not very distinct, but that bordering the outside of the spiracular is. The supramedian area is not very clear; it is rounded at the base and transverse at the apex; at its base the metanotum is raised above its level. The lateral tubercles are large (and triangular in form if viewed from the side), their apices not very acute. The pleuræ in the middle are longitudinally, the metanotum behind transversely, striated. The petiole is smooth, shining, and impunctate at the base, shallowly punctured at the apex; the postpetiole is broad, slightly depressed at the sides, and punctured; the petiole, to near the apex, is black. Gastrocœli large, broader than long, coarsely striated. The abdomen is closely punctured and acute at the apex; the black mark on the second segment occupies somewhat more than the basal half, and is transverse at the apex; on the three following segments it occupies scarcely the half, and is rounded, narrowing at the sides; on the fifth segment it does not occupy more than one third; there is no black on the apical segment, but the sheath of the ovipositor is black. There is a small black spot at the base of the hind coxæ and a larger one at the apex, both being on the upper side; on the underside and at the apex the hind tibiæ are brownish; the lower side of the tarsi inclines also to brownish. Areolet triangular above, the lateral nervures almost touching.

In one specimen, apparently a variety of the above, the upper part of the scutellum is roundly depressed, thus forming two tubercles, and the black on the mesopleura is longer and has a yellow spot in the centre.

147. **Ichneumon marginiscutellatus.**

Niger, flavo-varius; ore, facie, orbitis, annulo flagello antennarum, linea pronoti, maculis 2 mesonoti, scutelli medio, postscutello, maculis 4 pleuralibus, maculis 2 metanoti abdominisque segmentis apice, flavis; pedibus

flavis, macula coxarum posticarum, linea femorum posticorum dimidioque apicali tibiarum posticarum, nigris; alis hyalinis, stigmate nigro. ♀.

Long. 13 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ a little longer than the body, dilated somewhat towards the apex. Head buccated; face with shallow punctures; clypeal foveæ deep; vertex depressed between the eyes. Thorax with shallow scattered punctures; the base of the metanotum impunctate, obscurely shagreened; the rest and the pleuræ transversely striated; the sides also punctured. The yellow line on the pronotum is broad; the two lines on the mesonotum more than double as long as wide. The scutellum yellow above throughout, the projecting sides entirely black. The two marks on the metanotum occupy the greater portion of the sides, and cover the spines, but they do not extend on to the central area. On the mesopleura there is, beneath the fore wings, a large yellow mark; below this again, but placed more in the rear, is a slightly smaller mark; there is a much smaller mark beneath the hind wings, and the greater part of the metapleura is yellow. The metathoracic areæ are all distinct; the supramedian area a little longer than broad, dilated towards the apex; the spines large, stout, and subacute at the apex. Petiole shining, bearing scattered punctures; postpetiole impunctate, a longish moderately deep fovea in the centre above. Gastrocœli deep, wider than long, aciculate, the sides striated. Abdomen not much longer than the head and thorax together; the base of the second segment longitudinally striated; the following segments closely and strongly punctured, the punctuation becoming weaker until the apical segment is almost impunctate. Legs stout; the hind coxæ punctured, black at the base and apex; the hind trochanters black beneath; the hind femora black except above; the tibiæ with the apical half black; the tarsi incline to fulvous. The scutellum, in the middle, rises nearly equally from the base and apex; the sides project above it into large stout teeth, which are blunt and a little bent at the end. Viewed from the side the scutellum is somewhat triangular. Areolet 5-angled, the lower side distinctly angled; the lateral nervures converging above.

148. **Ichneumon fortispina.** (Tab. VIII. fig. 24.)

Niger, flavo-variegatus; flagello antennarum annulo, maculis 2 mesonoti, apice scutelli, maculis 2 metanoti, pedibus anterioribus tarsisque posticis, flavis. ♂.

Long. 8 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ nearly as long as the body, a little compressed before the apex; the scape white beneath. Head large, dilated behind the antennæ; face flattish; yellow, except behind; the centre of the vertex, and the orbits behind narrowly, black; in the black behind and nearly touching the eyes above is a yellow mark. Thorax black; a short broad mark on the edge of the pronotum, two broad lines in front of the

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scutellum, the apex of the scutellum, the postscutellum, two large marks on the metanotum, the tubercle below the tegulæ, an oblong mark below, a round one below the hind wings, a large mark close to the mesosternum, and an equally large one on the metapleuræ, yellow. Metanotum coarsely punctured and reticulated; the apex semi-oblique, hollow in the centre, the hollow being less strongly punctured than the rest, and with the sides margined. Petiole and postpetiole smooth, impunctate, the latter with a few punctures at the apex. The rest of the abdomen oval, punctured, black; the edge of the second, the third at the apex, and the apical segment almost entirely, yellow; gastrocœli large, deep, shining, striated, aciculate; a large transverse furrow at the base of the third segment; the second segment strongly, the third and fourth more finely, punctured; the apical segment almost impunctate. Four anterior legs entirely, and the hind tarsi, fulvous; hind coxæ, trochanters, femora, and tibiæ, black; the coxæ yellow behind.

149. **Ichneumon fastidiosissimus.**

Niger; facie, orbitis, annulo flagello antennarum, linea pronoti, maculis thoracis, coxis trochanteribusque anterioribus, macula coxarum posticarum, maculisque lateralibus abdominis, albis; pedibus rufis, coxis trochanteribusque posticis (macula excepto) nigris; alis hyalinis, nervis stigmateque nigris. ♂.

Long. 13 millim.

Hab. Panama, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

Antennæ nearly as long as the body, stout, covered with a microscopic pile; the third and fourth joints subequal. Face densely covered with white hair, punctured; the clypeus scarcely transverse at the apex; mandibles for the greater part piceous black; behind and above the antennæ (except at the orbits) the head is black. Ocelli raised, a curved deep furrow in front of them. The collar is white and raised in the centre, the raised part being lower than the pronotum close to the mesonotum, and there is also a longish mark on its side; the line on the edge of the pronotum is short, and from it the pronotum runs quite straight and flat to the collar; the pronotum is strongly punctured, the sides shining. Mesonotum strongly punctured all over; the pleuræ in front strongly projecting out from the prothorax; a deep curved hollow in the centre. The carinæ in front of the scutellum are white at the base; the scutellum is white behind; tegulæ, the tubercle below, one about the same size below the fore wings, a large longitudinal mark in the middle of the mesopleuræ, two marks below the hind wings, a roundish mark on the metapleuræ, a small mark on either side of the metanotum, and the tubercles, white. Scutellum largely projecting, almost equally from the base and apex; the sides bluntly keeled; the upper part depressed in the centre, and having a tubercle-like projection on either side. Metathorax coarsely and transversely striated and punctured; the areæ complete; the supramedian area with a longitudinal keel in its centre, from which run strong striations to the sides; it widens towards the apex, and is longer than broad; petiolate area hollowed; tubercles

very large and stout. Petiole smooth and shining, hollowed in the centre, contracted in the middle, the apex aciculate; postpetiole coarsely punctured, the middle bluntly carinate on either side to near the apex. Gastrocœli transverse, indistinct. The second, third, and the basal half of the fourth segments of the abdomen coarsely and longitudinally punctured; the apex shining and almost impunctate; a transverse white mark on either side of every segment (including the petiole), the marks becoming wider and narrower as the apex is reached; ventral surface white in the centre, the apical segments banded with white. Areolet 5-angled, converging above. Hind coxæ strongly punctured.

The following species has the general form (especially the thorax and abdomen) of *Joppa*, but the antennæ in the female are slender, and not dilated and compressed. The punctuation of the thorax and abdomen varies in intensity. Brullé places the species in *Joppa*, Cresson in *Ichneumon*. Actually it is intermediate between these genera.

150. **Ichneumon (?) conicus.** (Tab. VIII. fig. 22.)

Joppa conica, Brullé, Hymén. iv. p. 286. no. 31; Cresson, Trans. Am. Ent. Soc. ii. p. 29 (♂ ♀)[1].
Ichneumon breviventris, Cresson, Proc. Ent. Soc. Phil. iv. p. 12 (♂)[2].
Ichneumon conicus, Cresson, Proc. Acad. Phil. 1873, no. 1 (♂ ♀)[3].

Hab. Mexico, Cordova[1 3] (*Sumichrast*), Orizaba[3] (*Sumichrast*, *Bilimek*); British Honduras, Belize (*Blancaneaux*).—Antilles, Cuba[2].

As the punctuation of the thorax and abdomen varies, I have no doubt that the Cuban *I. breviventris* is an aberration, as Cresson suspected.

ŒDICEPHALUS.

Œdicephalus, Cresson, Trans. Am. Ent. Soc. ii. p. 27; Proc. Acad. Phil. 1873, p. 129.

This genus is chiefly remarkable for having the head "unusually large and swollen, very broad behind the eyes, the occiput deeply emarginate," and the basal foveæ on the second abdominal segment "broad, transverse, and very deep." Cresson looks upon it as only a subgenus of *Ichneumon*. All the described species are from Cuba and Mexico.

1. **Œdicephalus longicornis.**

Œdicephalus longicornis, Cresson, Trans. Am. Ent. Soc. ii. p. 27 (♀)[1]; Proc. Acad. Phil. 1873, p. 129.

Hab. Mexico, Cordova[1] (*Sumichrast*).

2. Œdicephalus sororius.

Œdicephalus sororius, Cresson, Trans. Am. Ent. Soc. ii. p. 28 (♀)[1]; Proc. Acad. Phil. 1873, p. 129.

Hab. Mexico, Cordova[1] (*Sumichrast*).

3. Œdicephalus glucidatus. (Tab. VIII. fig. 23.)

Niger, flavo-variegatus; annulo flagello antennarum, scutelli lateribus maculisque 2 mesonoti, flavis; pedibus anterioribus, femoribus posticis supra basique tibiarumque posticarum, nigris; stigmate testaceo. ♀. Long. 11 millim.

Hab. Guatemala, Zapote (*Champion*).

Antennæ as long as the body, thickened and compressed before the apex. Head smooth, shining, impunctate, yellow behind; the vertex in the centre, a band going from the back to the eyes, and the orbits narrowly behind, black; a narrow line runs also from the clypeal foveæ to the side. Thorax shining and almost impunctate, a few punctures on the scutellum; black; a broad line on the pronotum, the prosternum, the meso- and metapleuræ, except a large black space (with a yellow mark in its centre), the sternum, the tegulæ, two broad marks in the middle of the mesonotum, two smaller and more rounded ones in front of the scutellum, the sides of the latter broadly, and the apex narrowly, the suture of the mesonotum, the postscutellum, a transverse line at the base of the metanotum, the apex of the metanotum (except a black line down the centre and a large oval mark occupying the greater part of the metapleuræ), yellow. The base of the metanotum is punctured; the apex transversely striated, with an oblique slope, and scarcely hollowed in the centre. Petiole smooth, shining; postpetiole slightly punctured on the upper part. Gastrocœli transverse, deep, impunctate, almost touching in the centre, the part between black and longitudinally striated; a little beyond the gastrocœli is a deep transverse depression, black, and with large longitudinal striations. The rest of abdomen shining, impunctate, and bearing long scattered hairs; the postpetiole, the depression on the second segment, the base of the same segment broadly, and of the other segments narrowly, black. The hind coxæ are lined with black all round at the base, and have a large black mark behind; the four anterior legs are narrowly lined with black above; the hind femora are black all round at the base and broadly so above, there being, however, a yellow space in the centre of the black; the hind tibiæ are black at the base. The yellow of the legs has a fulvous tinge. Areolet 5-angled, the lateral nervures converging above, the outer nervure with a short bulla; nervures black; the stigma testaceous, black above.

4. Œdicephalus gracilicornis.

Œdicephalus gracilicornis, Cresson, Trans. Am. Ent. Soc. ii. p. 28 (♂ ♀)[1]; Proc. Acad. Phil. 1873, p. 130.

Hab. Mexico, Cordova[1] (*Sumichrast*).

5. Œdicephalus vicinus.

Œdicephalus vicinus, Cresson, Proc. Acad. Phil. 1873, p. 130 (♀)[1].

Hab. MEXICO, Orizaba[1] (*Sumichrast*).

ORTEZIA.

Ortezia, Cresson, Proc. Acad. Phil. 1873, p. 130.

In this subgenus the head is small; the scutellum broadly quadrate, shield-like, and perfectly flat; the metathorax broad and without spines or tubercles; the legs short and stout; the abdomen short, broad, ovate, depressed, longitudinally rugose or aciculated, with the segments more or less constricted at the base. (*Cresson.*)

1. Ortezia egregia.

Joppa egregia, Cresson, Trans. Am. Ent. Soc. ii. p. 30 (♀)[1].
Ortezia egregia, Cresson, Proc. Acad. Phil. 1873, p. 130.

Hab. MEXICO, Orizaba[1] (*Sumichrast*).

2. Ortezia aciculata.

Joppa? aciculata, Cresson, Trans. Am. Ent. Soc. ii. p. 30 (♂ ♀)[1].
Ortezia aciculata, Cresson, Proc. Acad. Phil. 1873, p. 130.

Hab. MEXICO, Cordova[1] (*Sumichrast*).

TROGUS.

Trogus, Panzer, Krit. Revis. ii. 1806, p. 80.

The species here included in this genus are typical forms, excepting perhaps *T. excellens*, which has not the scutellum quite so sharply peaked as the others; but it agrees so closely otherwise with *T. ornaticornis* that I do not see how the two can be separated generically. But see my remarks on pp. 136, 137.

1 (6). Wings violaceous throughout.
2 (3). Anterior half of the thorax and the anterior legs yellowish red . . . *latipennis.*
3 (2). Thorax entirely bluish.
4 (5). Antennæ broadly white in the middle, the head with only the inner and lower orbits of the eyes yellow, the palpi blackish . . . . . *ornaticornis.*
5 (4). Antennæ entirely black, face and palpi yellow . . . . . *excellens.*
6 (7). Wings with two violaceous bands . . . . . *blandita.*
7 (6). Wings only violaceous at the apex.
8 (9). Abdomen largely marked with yellowish white, a transverse yellow line on the metathorax, the legs more or less yellow . . . . . *inclyta.*
9 (8). Thorax entirely black, the abdomen with only four small yellow marks; the legs black, except the hind tarsi. . . . . *pulchripennis.*

1. **Trogus latipennis.**

Trogus latipennis, Cresson, Proc. Acad. Phil. 1873, p. 132 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

2. **Trogus excellens.**

Cærulea; facie (medio excepto), ore, palpis, tibiis tarsisque anticis, flavis; alis nigro-violaceis. ♂.
Long. 17 millim.

Hab. Guatemala, Purula (*Champion*).

Head and thorax closely and rather strongly punctured; the middle of the mesopleura more shining and less closely punctured; the base of the metanotum smooth, shining, and impunctate. Petiole punctured, the postpetiole more strongly and closely: a furrow runs through the middle of the latter, the furrow keeled on either side. The rest of the abdomen strongly and coarsely punctured, the punctures running into reticulations on the second and third segments; the apical segments are not so strongly punctured, and the punctures are wider apart. Areæ of the metanotum all present, except the upper median. Scutellum raised into a blunt peak. Gastrocœli large, deep, shining in the centre; the space between the two longitudinally striated. The entire face (except a black line which runs down from the antennæ to the clypeus), the inner orbits of the eye, and the mandibles and palpi, bright yellow. Wings large; areolet broad at the bottom, the lateral nervures curved and meeting above. The abdominal segments are not much constricted at the base.

3. **Trogus ornaticornis.** (Tab. IX. fig. 2.)

Cærulea; antennarum articulis 2°–10^{m} flavo-albidis, tibiis anticis sordide albis, alis violaceis. ♂.
Long. 17 millim.

Hab. Guatemala, Purula (*Champion*).

Body closely punctured all over; mesopleura transversely and coarsely striated. Front deeply excavated immediately above and below the antennæ; the excavation smooth, shining, and impunctate; eyes projecting, the head retreating behind them; head not buccate. Scutellum not very much elevated above the scutum, shining, covered with scattered punctures, the upper part bluntly rounded, and with a deep depression at the base; postscutellum smooth, shining, impunctate, and with a deep wide transverse suture at its apex. The centre of the metanotum is broadly raised, and more shining and less punctured than the rest; the apex with a rather abrupt slope; coarsely punctured; the central and lateral keels well developed. Basal half of the petiole depressed in the centre, shining, faintly striated; the rest punctured like the other abdominal segments; the petiole at the base with a keel on both sides, which is prolonged into the end along the middle of the thicker apical portion. Abdominal segments convex above, strongly constricted at the base. Gastrocœli deep,

double as wide as long. Coxæ punctured like the abdomen, the punctuation on the femora and tibiæ less strong. Areolet triangular above, the nervures touching, the lateral outer nervure curved. Below each of the antennæ and touching the eyes is a whitish-yellow mark. The entire body is covered with a close, fuscous-black pubescence.

4. **Trogus blandita.** (Tab. IX. fig. 1.)

Trogus blandita, Cresson, Proc. Acad. Phil. 1873, p. 132 (♂ ♀)[1].
Joppa elegantula, F. Smith, Descr. of New Species of Hymen. p. 233 (1879) (♀)[2].

Hab. MEXICO, Orizaba[1] (*Sumichrast*); GUATEMALA, Cubilguitz, Panzos, Senahu, and Sabo in Vera Paz, Zapote, Las Mercedes 3000 feet, San Isidro, Coatepeque 1300 feet (*Champion*); COSTA RICA, Cache[2] (*Rogers*); PANAMA, Volcan de Chiriqui 2500 to 3000 feet, Bugaba (*Champion*).

A common and widely distributed species in Central America.

5. **Trogus inclyta.**

Joppa inclyta, Cresson, Trans. Am. Ent. Soc. ii. p. 29[1] (♀).
Trogus inclyta, Cresson, Proc. Acad. Phil. 1873, p. 133.

Hab. MEXICO, Cordova[1] (*Sumichrast*).

6. **Trogus pulchripennis.** (Tab. VIII. fig. 25.)

Joppa pulchripennis, F. Smith, Descr. of New Species of Hymen. p. 232 (1879)[1].

Hab. GUATEMALA, Cubilguitz (*Champion*); COSTA RICA, Cache[1] (*Rogers*); PANAMA, Volcan de Chiriqui 2000 to 6000 feet, Bugaba 800 to 1500 feet (*Champion*).

JOPPA.

Joppa, Fabricius, Syst. Piez. p. 120.

The species of this genus are probably the most elegant, as regards coloration and shape, among the Ichneumonidæ. Yellow or lemon-yellow is the predominating ground-colour, the head, thorax, and, more rarely, the abdomen being marked with black; the wings are yellowish or hyaline, marked with black, or, more rarely, entirely black. They are (except a few species from India, South Africa, and Australia) natives of the Neotropical region. It is very difficult to point out any characters whereby the species, as a whole, may be distinguished from *Ichneumon*, and especially from *Trogus*.

A. *Areolet triangular, or, at least, with the lateral nervures distinctly converging above; abdomen longitudinally striated*.*

Synopsis of the Species.

1 (9). Mesonotum without black.
2 (8). Wings hyaline, black at ~~base~~. apex
3 (4). Head entirely black . . . . . *melanocephala.*
4 (3). Head only black above.
5 (6). Hind coxæ entirely yellow, base of second abdominal segment not black, extreme apex of hind femora only black . . . . . *varipes.*
6 (7). Hind coxæ entirely black; metanotum smooth, impunctate; abdomen longitudinally striated . . . . . *variolosa.*
7 (6). Hind coxæ yellow, with two black spots; abdomen longitudinally aciculate, metathorax longitudinally striated . . . . . *elegantula.*
8 (2). Wings entirely black . . . . . *fumipennis.*
9 (1). Mesonotum marked with black.
10 (11). Wings entirely yellow . . . . . *alternans.*
11 (12). Wings yellowish, a small fascia at base of radial cellule; metathorax with two short spines behind; petiole black . . . . . *suturalis.*
12 (15). Wings yellowish, the apex smoky.
13 (14). Apex of tibiæ and stigma black . . . . . *melanostigma.*
14 (13). Apex of tibiæ and stigma yellow . . . . . *xanthostigma.*
15 (22). Wings yellowish, the base and apex black.
16 (19). Pleuræ entirely yellow.
17 (18). Scutellum and base of metathorax black . . . . . *decorata.*
18 (17). Scutellum and base of metathorax yellow . . . . . *incerta.*
19 (16). Mesopleuræ black.
20 (21). Apex of hind femora black, apex of tibiæ yellow . . . . . *maculicornis.*
21 (20). Apex of hind femora yellow, tibiæ broadly black . . . . . *hilaris.*
22 (27). Wings violaceous, the middle more or less hyaline.
23 (26). Pro- and mesothorax and head black, femora broadly black.
24 (25). Scutellum flat in centre, third abdominal segment shorter than all the following together . . . . . *rogersi.*
25 (24). Scutellum sharply peaked, third abdominal segment almost longer than all the succeeding together . . . . . *nigriceps.*
26 (23). Pronotum and pleuræ yellow, hind knees only black . . . . . *modesta.*
27 (22). Wings hyaline, apex and one or two fasciæ in the middle black.
28 (33). Mesonotum entirely black.
29 (30). Pleuræ entirely yellow, hind knees only black . . . . . *chiriquensis.*

* Brullé (Hymén. iv. pp. 270 & 287) divides the genus into two divisions, but he gives the same distinctive characteristic to both, namely, the possession of a pentagonal areolet. His first section has certainly the areolet pentagonal; but I cannot make out if his second group has it 4-angled, as he does not mention its form in any of the species, other than in the (probably erroneous) sectional heading on p. 287.

30 (29). Pleuræ entirely black, femora broadly black.
31 (32). Metanotum black, a small fascia in middle of hind wings . . . . *geniculata.*
32 (31). Metanotum yellow, no fascia in hind wings . . . . . *xanthostoma.*
33 (28). Mesonotum yellow, with three black longitudinal lines; metanotum spotted with black . . . . . *sumichrasti.*

1. **Joppa melanocephala.** (Tab. IX. fig. 4.)

Joppa melanocephala, Cameron, Ent. Mo. Mag. xxi. p. 104[1].

Flavo-testacea; capite, antennis, abdominis apice tarsisque posterioribus, nigris; alis flavo-hyalinis, apice violaceis, stigmate flavo.
Long. 21–22 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet, Bugaba 800 to 1200 feet [1] (*Champion*).

Head shining, smooth, bearing a few shallow punctures, especially on the face; mandibles and palpi yellow. Scape of the antennæ punctured. Sides of the pronotum obscurely striated in front. Mesonotum semiopaque, closely punctured all over, the punctures being more widely separated along the sides. Meso- and metapleuræ punctured, obscurely striated. Scutellum longitudinally striated, the striations large, widely separated, especially at the sides, where they form almost keels; the depression at the base is also striated. Metanotum punctured, transversely striated in the middle; there is one large median area, the base of which is rounded; on either side is another area of nearly equal length; outside of these again is one which is still longer, as it originates further back; there is a deep depression between the smooth, shining, impunctate postscutellum and the metanotum, which rises gradually from this hollow, it being there smooth and shining to the commencement of the median area. Petiole smooth, shining, hollow in the middle, the sides obscurely margined, the apex punctured; postpetiole longitudinally striated, the striations large, the centre hollow. Gastrocœli transverse, large, deep, united by a wide furrow, which, like the whole of the segment, is striated; the striation on the abdominal segments is strong, becoming gradually weaker towards the apex of the third, which is scarcely striated there; the apical segments are not striated, but are obscurely punctured. Coxæ punctured. The violaceous cloud in the fore wings commences at the base of the radial cellule.

A specimen from Bugaba has three blackish, almost confluent, marks on the mesonotum. Sometimes the apex of the third segment is blackish and the apex of the clypeus yellow; the scape is sometimes piceous. As in most of the species, the yellow on thorax varies from yellow to fulvous.

2. **Joppa varipes.** (Tab. IX. fig. 9.)

Joppa varipes, Cameron, Ent. Mo. Mag. xxi. p. 104[1].

Flavo-testacea; antennis, vertice, abdominis apice, tarsis, tibiarum apice femoribusque pro parte, nigris; tarsis albidis; alis flavo-hyalinis, apice fumatis, stigmate flavo.
Long. 11–12 millim.

Hab. Panama, Volcan de Chiriqui 2500 to 6000 feet[1] (*Champion*).

Occiput, the upper part of the back, and the front of the head to the base of the antennæ, except the orbits of the eyes in front, black, smooth, shining, impunctate. Mesonotum shining, bearing a few scattered punctures. Scutellum with prominent longitudinal striations. Metanotum hollow in the middle, the hollow transversely striated; the top smooth, shining, slightly punctured, as are also the sides. Petiole smooth, shining; postpetiole longitudinally striated. Gastrocœli transverse, shallow, smooth shining; the second, third, and basal three fourths of fourth segment longitudinally striated; the apex of the fourth shining, bearing a few punctures; the other segments impunctate, shining, as are also the coxæ; the third and the following abdominal segments are black entirely, except that there is usually a dark fulvous mark on either side of the third above. Tarsi black, except the anterior pair at the base; femora and the four anterior tibiæ more or less lined with black behind; posterior tibiæ white, black at the extreme base and broadly so at the apex. Labrum in the centre, the apex of the mandibles, and the spurs, black; face and petiole yellowish; the thorax may be testaceous or dark fulvous. The body is closely covered with fuscous pubescence, almost black on the abdomen. The cloud in the apex of the wing commences a little beyond the stigma. The male does not differ in coloration from the female.

3. **Joppa elegantula.**

Joppa elegantula, Cresson, Trans. Am. Ent. Soc. ii. p. 32 (♂)[1].

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*).

A specimen from Sabo, Vera Paz (*Champion*), is perhaps referable to this species, it differing from the type merely in having the hind coxæ entirely black, and the tibiæ black at the base, and in having a small yellow spot on either side of the third abdominal segment. It differs from *J. varipes* in having only a small triangular black mark on the vertex covering the ocelli, in the hind femora being entirely black, except at the base, and in the hind coxæ being black; the metanotum behind is not so strongly striated, and the second segment is black at the base.

4. **Joppa variolosa.**

Joppa variolosa, F. Smith, Descr. of New Species of Hymen. p. 232[1].

Hab. Costa Rica, Caché[1] (*Rogers*).

From the typical *J. elegantula* this species differs in having the hind coxæ and trochanters black, except at the extreme apices; the four anterior femora black, except at the base and apex (*elegantula* has the "tips of them behind" only); all the tibiæ black at the base, the front pair lined also with black behind; and the metanotum can scarcely be called "longitudinally rugulose." It is more slender than the above-described variety from Sabo, with which it agrees in the amount and arrangement of

the black; but the tibiæ are distinctly white, the two basal segments of the abdomen pallid lemon-white, and the metanotum behind is not so much excavated.

5. **Joppa fumipennis.** (Tab. IX. fig. 11.)

Joppa fumipennis, Cresson, Trans. Am. Ent. Soc. ii. p. 32 (♂ ♀)[1].

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*); Guatemala, Panima in Vera Paz (*Champion*); Nicaragua, Chontales (*Janson*).—Venezuela.

A Venezuelan specimen has the tibiæ without any yellow annulus; the Guatemalan individual has it very broad on all of them.

6. **Joppa alternans.**

Joppa alternans, Brullé, Hymén. iv. p. 278. no. 16[1].

Hab. Mexico[1].

7. **Joppa suturalis.**

Joppa suturalis, Brullé, Hymén. iv. p. 281. no. 21[1].

Hab. Mexico[1].

8. **Joppa melanostigma.** (Tab. IX. fig. 10.)

Joppa melanostigma, Cameron, Ent. Mo. Mag. xxi. p. 104[1].

Flava; antennis, vertice, mesonoto, abdominis apice, geniculis posterioribus læte, tarsisque posterioribus, nigris; alis flavo-hyalinis, apice fumatis, stigmate nigro.

Long. 14 millim.

Hab. Panama, Bugaba[1], Volcan de Chiriqui 2500 to 3000 feet (*Champion*).

Face pallid yellow (perhaps discoloured), marked with some scattered microscopic punctures; clypeus broad, sharply transverse, the sides rather acute; labrum and the apex of the mandibles black; the top of the head is entirely black, and the black extends, as a triangular prolongation, nearly to the base of the antennæ. Mesonotum shining, impunctate, almost glabrous. Scutellum broad, flat, keeled at the sides, which bear a yellow mark; the top with a few punctures. Metanotum distinctly areolated, punctured, very slightly excavated behind. Postpetiole, the second segment, and the basal three fourths of the third segment, longitudinally striated above, the sides punctured and with a conspicuous keel; apical segments impunctate. The third segment bears a large black mark, contracted at the apex in the middle; the following segments are entirely black. The four anterior knees are only black behind; the posterior knees entirely so, there being double the amount of black on the femora that there is on the tibiæ; on the front pair it is much less. The black cloud is present in both wings; the areolet is sharply triangular above.

The specimen from the Volcan de Chiriqui wants the black on the third abdominal segment, and the black on the hind knees scarcely extends on to the femora.

9. **Joppa xanthostigma.**

Joppa xanthostigma, Cameron, Ent. Mo. Mag. xxi. p. 105 [1].

Flava ; antennis, vertice, mesonoto, mesosterno, abdominis apice, tarsis posterioribus tibiarumque posticarum apice, nigris ; alis flavis, apice fumatis, stigmate flavo. ♂.
Long. 13 millim.

Hab. Costa Rica, Caché [1] (*Rogers*).

Body smooth, shining, impunctate, covered with a dense blackish or fuscous pubescence. Petiole shining, impunctate, the rest of the back of the abdomen obscurely punctured, the punctures scarcely visible on account of the pubescence. Metanotum excavated in the middle behind ; the areæ obsolete, but there is a curved keel on each side. There is a small black line at the base of the third abdominal segment ; the fourth and following segments are black, except a fulvous fascia in the middle of the fourth. Areolet sharply triangular above.

Differs from *J. melanostigma* in the abdomen not being longitudinally striated, in the cloud at the apex of the wing extending to the areolet, in there being no black on the femora, in the breast being black, &c.

10. **Joppa decorata.**

Joppa decorata, Cresson, Trans. Am. Ent. Soc. ii. p. 32 (♂) [1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

11. **Joppa incerta.**

Joppa incerta, Cresson, Proc. Acad. Phil. 1873, p. 131 [1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

12. **Joppa maculicornis.**

Joppa maculicornis, Cameron, Ent. Mo. Mag. xxi. p. 105 [1].

Flava ; antennis, capite postice, mesonoto, mesopleuris, metanoti basi, abdominis apice, tarsis posterioribus, femoribusque posterioribus dimidio apicali, nigris ; antennarum annulo medio albo ; alis nigris, medio flavo-hyalinis.
Long. 12 millim.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet [1], Bugaba (*Champion*).

Head smooth, shining, impunctate ; the black marking does not extend much beyond the eyes behind ; in front it reaches the commencement of the frontal depression and projects to a point in the middle, and, to a less extent, on either side ; labrum and the apex of the mandibles black. Antennæ stout, as long as the thorax and abdomen together ; scape yellow beneath. Thorax densely pubescent ; mesonotum shagreened ; the black does reach the prothorax at the sides, and there are two short yellow bands at the sides. Scutellum smooth, shining, margined at the sides, broad and raised at the

base, the apex flat, the upper surface covered with scattered microscopic punctures; postscutellum smooth, shining, impunctate; the thorax on either side of it reticulated. Metanotum impunctate, the apex a little excavated in the middle; the areæ distinct. Postpetiole and the second and third segments longitudinally striated above, smooth, with scattered punctures along the sides; base of the fourth segment obscurely striated, the apex slightly punctured; apical segments with scattered punctures, and densely pilose. Sheath of the ovipositor densely pilose. On the anterior femora the black is only behind, on the posterior femora it extends all round. As in most of the species, the yellow on the legs tends to change to fulvous.

13. **Joppa hilaris.**

Joppa hilaris, F. Smith, Descr. of New Species of Hymen. p. 232[1].

Hab. Costa Rica, Caché[1] (*Rogers*); Panama, Bugaba 800 to 1500 feet (*Champion*).

This species is readily known from *J. maculicornis* by the femora being entirely yellow, by the areolet not being triangular at the top, the lateral nervures but slightly converging above, and by the abdomen being perfectly smooth, and not in any way striated.

14. **Joppa nigriceps.** (Tab. IX. fig. 5.)

Joppa nigriceps, Cameron, Ent. Mo. Mag. xxi. p. 105[1].

Nigra; metathorace, abdominis segmentis 1–2, coxis, trochanteribus, femoribus tibiisque pro parte, flavis; alis violaceis, albo-maculatis.

Long. 18–19 millim.

Hab. Guatemala, Sabo in Vera Paz[1] (*Champion*); Panama, Volcan de Chiriqui[1] (*Champion*).

Head with scattered punctures, aciculated on the top; mandibles and palpi yellow. Mesonotum with scattered punctures, semi-opaque; pleuræ rugose, longitudinally striated, except in the centre of the mesopleura, which is shining, impunctate. Scutellum sharply gibbous, acute at the top, the sides keeled, the space between the keel and the raised central peak hollow. Metapleura transversely striated. Abdomen entirely longitudinally striated above. The anterior femora are black, except at the base and apex and a small part of the middle in front; the intermediate femora have the apical three fourths, and the posterior pair a little more than the apical third, bluish-black. The four anterior tibiæ are bluish-black behind, the posterior tibiæ entirely yellow. Generally the part of the wing between the base and the apex of the stigma is hyaline, and there is usually a hyaline spot in the black basal part. The hind wings are only smoky at the apex. Mandibles, palpi, and a spot on either side of the clypeus, yellow.

15. **Joppa rogersi.**

Joppa rogersi, Cameron, Ent. Mo. Mag. xxi. p. 105 [1].

Hab. Costa Rica, Volcan de Irazu 6000 to 7000 feet [1] (*Rogers*); Panama, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

In size, coloration, and punctuation this species does not differ much, if at all, from the preceding; the only differences of any importance that I can find between them are that the scutellum is not raised into a sharp peak in the centre, it being flat along its entire extent, and traversed by two or three carinæ, the sides being also keeled; that the third abdominal segment is shorter than the following segments together (the opposite being the case in *J. nigriceps*), and that the metathoracic areæ are all clearly defined, and the pronotum not transversely striated.

16. **Joppa modesta.** (Tab. IX. fig. 8.)

Joppa modesta, F. Smith, Descr. of New Species of Hymen. p. 233 [1].

Hab. Costa Rica, Caché [1] (*Rogers*).

17. **Joppa xanthostoma.** (Tab. IX. fig. 6.)

Joppa xanthostoma, Cameron, Ent. Mo. Mag. xxi. p. 105*.

Nigra; ore, facie, palpis, metathorace, coxis, trochanteribus, femoribus pro parte, tibiis anterioribus pro parte, posticisque fere totis, flavis; alis hyalinis, apice fasciaque medio violaceis.
Long. 20 millim.

Hab. Costa Rica, Caché (*Rogers*).

Head smooth, shining; the face and sides with some scattered punctures. Mesonotum shining, smooth, finely punctured, the punctures wide apart. Pleuræ finely punctured, striated posteriorly. Scutellum flattish, smooth, shining, indistinctly punctured; postscutellum smooth, shining, impunctate. Base of the metanotum smooth, shining, impunctate; the rest irregularly reticulated and striated; the areæ not very clearly defined; the metanotum has but a gentle slope, and the centre behind is a little hollowed. Petiole smooth, shining; postpetiole, and the second and third segments, longitudinally striated; the rest of the abdomen impunctate, smooth, and shining. Gastrocœli large, deep, transverse, shining in the centre; the sides striated. The mandibles, palpi, labrum, clypeus, and the lower orbits of the eyes are yellow, the black extending down the centre of the face from the antennæ to the clypeus. The prosternum is yellow, as is also the hind portion of the mesothorax and the whole of the metathorax. The four anterior tibiæ and tarsi are entirely black behind; the anterior femora are black, except at the base and apex; the middle femora have about the apical half black; the posterior tarsi are entirely black, as are also the hind

* The localities "Guatemala and Panama," given for this species (*loc. cit.*), are erroneous. I have only seen it from Costa Rica as yet.

knees. The wings are as in *J. geniculata*, except that there is no black fascia in the middle of the hind ones.

A stouter insect than *J. geniculata*, and readily known from it by the absence of black from the metathorax, and of a black fascia in the hind wings.

18. **Joppa geniculata.**

Joppa geniculata, Cameron, Ent. Mo. Mag. xxi. p. 105 [1].

Nigro-violacea; facie, metapleuris, abdominis segmentis 1–2, coxis, trochanteribus, femoribus tibiisque pro parte, flavis; alis violaceis, albo-fasciatis.
Long. 16–18 millim.

Hab. GUATEMALA, Cubilguitz [1] and Panima in Vera Paz (*Champion*); PANAMA, Volcan de Chiriqui 2500 to 4000 feet [1] (*Champion*).

Face almost impunctate; mesonotum shining, minutely punctured, the lower part and the sides of the pleuræ punctured. Scutellum flat, the sides bordered, very obscurely striated, and with a few punctures on the top. Base of the metanotum smooth and shining, the rest punctured, striated and reticulated irregularly, the reticulations being most conspicuous on the area next the upper median; middle of the metanotum excavated, but not very deeply. Petiole smooth, shining; postpetiole broad, hollow in the centre, longitudinally striated above; the sides smooth, impunctate; the second and the basal three fourths of the third segment longitudinally striated, punctured at the sides, the apical segment microscopically punctured. The inner and lower orbits of the eyes, the face below the antennæ, the mandibles, and the palpi are lemon-yellow; but there may be a large black mark below the antennæ extending to the clypeus or near to it. The sides of the collar are sometimes more or less yellow. The tibiæ and femora are entirely yellow in front; the anterior ones are almost entirely black behind; the posterior knees and the apices of the tibiæ only are black; the anterior tibiæ are yellowish at the base; the third abdominal segment at the sides is usually yellow above. The metanotum is sometimes yellowish at the sides, and there may be a yellow spot in the centre, or it may be entirely black. The anterior wings are usually violaceous in front of the areolet and behind the stigma, but there is generally a long fascia on the cellule; the posterior ones have the apices and a narrow fascia in the middle violaceous.

19. **Joppa chiriquensis.**

Flava; antennis, vertice, mesonoto, scutello, geniculis posticis tarsisque posterioribus, nigris; alis hyalinis, bifasciatis, stigmate nigro.
Long. 12 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 3000 feet (*Champion*).

Smooth, shining, impunctate. Metanotum obscurely and irregularly reticulated; postpetiole and the second and third abdominal segments strongly longitudinally striated.

Gastrocœli transverse, narrower on the inner side. The black on the vertex extends right across and halfway down behind, and in front projects into a sharp triangle. The mesonotum is black to the scutellum; the latter may be entirely black or have the sides yellow. There is an irregular black mark in the centre of the second and third segments at the base. The anterior tibiæ and the apices of the femora have an obscure black line on the upper side. The apices of both wings are broadly infuscated, and there is also, in both, a large fascia before the middle.

20. **Joppa sumichrasti.** (Tab. IX. fig. 7.)

Joppa sumichrasti, Cresson, Trans. Am. Ent. Soc. ii. p. 31 (♂ ♀)[1].

Hab. MEXICO, Orizaba, Cordova[1] (*Sumichrast*); GUATEMALA, Cerro Zunil 4000 to 5000 feet, Panima in Vera Paz (*Champion*).

This is a variable species so far as the quantity of black on the thorax and abdomen is concerned. It is easily known from *J. chiriquensis* by the black on the mesonotum being divided, by there always being black on the metanotum, and by the stigma being yellow.

B. *Areolet quadrangular, large, a little longer than broad, scarcely angled in the middle, where the recurrent nervure is received; gastrocœli semiobsolete; abdominal segments not striated.*

21. **Joppa maculicollis.**

Flava; antennis, vertice, macula pronoti, tegulis, mesonoto cum scutello, abdominis apice, coxis posticis, femorum posticorum dimidio basali, tarsis posterioribus tibiisque posticis, nigris; alis hyalinis, stigmate et apice nigris. ♀.

Long. 18 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ as long as the body, of the usual form; the scape yellow on the lower side. Head impunctate; the tips of the mandibles, the vertex in the centre in front and broadly behind, black. Pro- and mesothorax impunctate, shining. Metanotum transversely striated, except in the centre behind, and without distinct tubercles. Scutellum keeled along the sides. Abdomen a little longer than the head and thorax; the apex obliquely truncated and a little compressed laterally. Petiole smooth, impunctate; the other segments obscurely aciculate. Gastrocœli semiobsolete. The sheaths of the ovipositor originate from the bottom of the venter and are directed obliquely upwards, projecting above the top of the dorsum.

ABZARIA

Eyes margined; two, slightly curved, compressed laterally, a little dilated at the apex, tubercles on the hollow above the antennæ. Scutellum not margined. Petiole

bluntly carinate; postpetiole strongly punctured, more than double as wide as high. Gastrocœli obsolete. Areolet 5-angled, the lateral nervures converging and nearly touching above. Head not buccate. Metathoracic spiracles large, acutely oval.

The form of the petiole, it being broader than high, places this genus in the "Ichneumones platyuri" of Wesmael, but it is very distinct from any of the genera of that group.

1. **Abzaria latipetiolaris.** (Tab. IX. fig. 3.)

Nigra; antennis (annulo excepto), facie, orbitis, palpis, linea pronoti, tegulis, lineis 2 mesonoti, scutello, maculis 2 mesopleuralibus, maculis 6 metathoracis, abdominis segmentibus apicibus pedibusque, flavis; alis hyalinis, stigmate nigro.

Long. 13 millim.

Hab. MEXICO, Orizaba (*Bilimek*).

Head narrower than the mesothorax, retreating behind the eyes, which are margined, the margin being especially developed on the inner side; ocelli raised; clypeus almost transverse at the apex; labrum with a long fringe of hair; clypeal foveæ large, deep; face punctured. The head is black behind and on the vertex, except at the eyes; the rest entirely yellow, except the mandibles at the base and apex, where they are piceous-black. Antennæ stout, opaque, covered with a microscopic down; the joints closely joined together. Thorax smooth, shining, impunctate, sparsely covered with scattered down. The yellow line on the pronotum is broadest in the middle, and does not extend the entire length; the two lines on the mesonotum are shorter and thinner; the marks on the mesopleuræ are large, the upper one somewhat triangular, situated immediately below the tubercles under the tegulæ (these being also yellow) and smaller than the other, which is in the centre near the sternum; the mark on the metapleura is oval and shorter than the smallest on the mesopleura. The pleuræ are sparsely impressed with large punctures. Scutellum large, flattish. Metanotum coarsely and rugosely reticulated; the apex semiperpendicular; the areæ distinct; petiolate area wide; supramedian area much wider than long, smooth, shining, impunctate, except at the extreme apex, where it is rugose; tubercles blunt; there is a yellow mark on either side at the base and a larger one on either side of the apex close to the top. Abdomen covered all over with large, clearly separated punctures. The legs are entirely yellow, except the knees, a line above the hind femora, the hind trochanters, and a large mark at the base and a smaller one at the apex on the inner side of the posterior coxæ, all black.

Subfam. *CRYPTINÆ.*

This extensive group is very numerously represented, especially by species of the genus *Mesostenus*, in the Neotropical Region. I question if it can be separated from the "Ichneumonides" by any one character; but generally the "Cryptides" are to be known from them by the ovipositor projecting to a greater or less extent, by there usually being

Pl. 40

a well-defined longitudinal suture on the mesopleura, by the second abdominal segment not bearing gastrocœli, while generally the mesonotal sutures are distinct.

The areolet is 5-angled, never petiolate, sometimes large, often very small; the outer nervure not unfrequently pellucid or entirely absent. The abdomen is depressed, its petiole slender, and in the male the postpetiole is rounded, or at least not distinctly transverse, never sessile. The metathoracic areæ are never so well-developed as in the "Ichneumonides"; often they are absent entirely. There are sometimes one or two transverse keels on the metanotum, often none. Many species have well-developed spines on the metathorax.

The generic distinctions are often far from clear. If we use the generic names as defined by Gravenhorst and the older authors, we can, as a rule, refer our species to such genera as *Cryptus*, *Mesostenus*, *Phygadeuon*, and *Hemiteles*; but if we were to limit them according to the views of Förster and Thomson, as these authors have arranged the European species, we should be under the necessity of creating numerous new genera. In the present state of the science, however, it seems to me very undesirable to do so.

CRYPTUS.

Cryptus, Fabricius, Syst. Piez. p. 70.

This is a genus of world-wide distribution. In Central America we find two well-marked groups—one of a northern type, with black head and thorax and red abdomen; the other with reddish bodies, and the wings fuscous with yellow bands, or yellow with fuscous bands; this latter type of coloration being a not uncommon one in South America.

A. *Head and thorax black; abdomen red.* (Species 1–6.)

a. *Legs black.* (Species 1–5.)

1. **Cryptus bicolor.** (Tab. IX. fig. 12.)

Cryptus bicolor, F. Smith, Descrip. of New Species of Hymen. p. 231[1].

Hab. Costa Rica, Volcan de Irazu 6000 to 7000 feet[1] (*Rogers*).

This is a larger and stouter species than *C. montezuma*; the silvery pubescence on the head and thorax is, if anything, denser; the scutellum more shining, and with the shallow punctures more widely scattered; the triangular area found in the middle of the metanotum in *C. montezuma* is not clearly defined, nor is there an angled cellule at its base; the lower transverse keel is not angled at the sides, it forming a curve from side to side, while in the other species it is quite straight in the middle, and with the sides angled, while the abdomen is stouter and longer.

2. Cryptus montezuma.

Niger; abdomine (basi excepta) rufo; alis fumatis; terebra quam abdomen fere longiore.
Long. 13 millim.; terebra 6½ millim.

Hab. Mexico, Ciudad in Durango 8100 feet (*Forrer*).

Head and thorax finely and closely rugose; a tubercle beneath the antennæ; the inner orbits obscure yellowish-white; face projecting; front deeply excavated above the antennæ, shining, transversely striated. Antennæ longish; first joint of the flagellum nearly as long as the two following together, the basal joints thickened at their apices. Mesonotal sutures subobsolete; scutellum as closely punctured as the rest of the mesothorax, the sides carinate. Metathoracic areæ mostly clearly defined, the basal area indistinct, the supramedian much broader than long, of the lateral areæ only the spiracular is defined; there is a blunt broad tooth on either side in front; from this a keel curves up to the top, joining the keel of the supramedian area at the side, this latter area being quite straight at the bottom. Petiole aciculated, the sides carinate, the basal three fourths black; apex scarcely aciculate; the rest of the abdomen shining, obscurely aciculate. Areolet 5-angled, the sides converging at the top, so that it is there not half the length that it is at the bottom.

This species may be known from *C. americanus*, Cresson, by the smoky wings; by the first joint of the flagellum being much longer than the second, by the strongly punctured scutellum, and by the carinæ on the petiole extending to the extreme apex.

3. Cryptus monticola.

Long. 8½ millim.; terebra 3 millim.

Hab. Mexico, Ciudad in Durango 8100 feet (*Forrer*).

Similar in coloration to the preceding species, but differing otherwise in having the head and mesonotum less strongly punctured, the punctures being clearly separated; by the clypeus being separated from the projecting face by a transverse depression; by the sutures on the mesonotum being distinct, broad, and deep. The scutellum is shining, with only scattered punctures, and the sides are not carinate; the carina which runs from the tubercles at the side of the metathorax is not straight above nor angled where it touches the supramedian area; the basal and lateral areæ are obsolete, and a curved oblique suture runs from near the spiracles to the posterior coxæ, while the terebra is only about three fourths of the length of the abdomen. The first joint of the flagellum is about one third longer than the second.

4. Cryptus nivalis.

Niger; abdomine rufo, basi et terebra nigris; alis fumatis.
Long. 10 millim.

Hab. Mexico, Ciudad in Durango 8100 feet (*Forrer*).

Antennæ as long as the body, stout, third joint longer than the fourth, almost bare. Head coarsely and closely punctured, bearing an indistinct fuscous pile; face flat, the clypeus projecting in the middle. Thorax closely and rather strongly punctured; mesonotal sutures obsolete; scutellum rather flat, shining, longer than broad, the sides keeled, the top bearing widely set-apart punctures. Metathorax with two transverse arcuate keels, the space between them reticulated, the rest coarsely punctured; the pubescence silvery-white. Abdomen shining, the petiole laterally keeled; terebra scarcely so long as the petiole. Wings short; areolet broader than long, the lateral nervures straight. Coxæ and trochanters punctured, covered with a silvery pile; a reddish ring at the base of the hind femora; anterior tarsi, tibiæ, and the apices of the femora, dirty white in front.

The short ovipositor separates *C. nivalis* from the rest of the black-legged species; the obsolete parapsides form another distinctive character.

5. **Cryptus argentifrons.**

Niger; tibiis, tarsis anterioribus apiceque tarsorum posticorum, albis; abdomine rufis, basi et apice nigris; alis fere hyalinis, nervis et stigmate nigris. ♂.
Long. 12 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ nearly as long as the body, stout, densely and shortly pilose; the third joint a little longer than the fourth. Head closely punctured all over, covered with a silvery-white pubescence; a large roundish flat tubercle below the antennæ; clypeus projecting, more shining than the rest of the head, its apex and the inner orbits dirty white. Thorax densely punctured, covered with a silvery-white pubescence; mesonotal sutures deep. Scutellum shining, punctured, the punctures wide apart; the sides at the base keeled. Metathorax covered with long silvery-white hair; a short, blunt tubercle at the side. Abdomen longer than the head and thorax together; petiole obsoletely keeled laterally, shining, the top a little depressed at the base; genital organs large, black, minutely punctured. Legs longish; coxæ punctured, covered with longish silvery-white hair. The anterior femora are white in the middle in front; the tibiæ and tarsi almost wholly white; the metatarsus and the apical joint of the hind tarsi are white. Areolet moderate, the lateral nervures converging above.

Allied to *C. albitarsis*, Cresson.

b. *Legs red.* (Species 6.)

6. **Cryptus sodalis.**

Niger; abdomine, femoribus, tibiis tarsisque, rufis; alis hyalinis.
Long. 10 millim.; terebra 5 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Head and thorax closely rugose all over, semiopaque, covered with short, white, glistening pubescence; eyes narrowly edged with white; clypeus projecting roundly in the middle; a short tubercle on the face below the antennæ. The antennæ are nearly as long as the body; the base of the flagellum is obscure testaceous, the third and the fourth joints obscure white; first joint of the flagellum as long as the second and third together, the third joint a little longer than the fourth. Mesonotal sutures subobsolete. Scutellum shining, with some punctures on the top, the sides rugose. Metathorax more strongly rugose than the mesothorax; its areæ obsolete; a distinct blunt spine on either side, united by a carina which goes round the top. Petiole shining, depressed in the centre at the base, the sides keeled above, the apex aciculated, the extreme base black; the rest of the abdomen finely and closely punctured. Hind femora curved. Areolet 5-angled, the sides scarcely converging above.

Closely allied to *C. persimilis*, Cresson, but that species is easily known from it by having the first joint of the flagellum not much longer than the second, the thorax "polished and feebly punctured," and without a tooth on either side of the metathorax.

B. *Black, marked with white.* (Species 7–13.)

7. **Cryptus aztecus.**

Cryptus aztecus, Cresson, Proc. Acad. Phil. 1873, p. 133. no. 1′ (♀)[1].

Hab. Mexico, Cordova[1] (*Sumichrast*).

8. **Cryptus tantillus.**

Cryptus tantillus, Cresson, Proc. Acad. Phil. 1873, p. 134. no. 2 (♂)[1].

Hab. Mexico, Cordova[1] (*Sumichrast*).

9. **Cryptus tenuiventris.**

Cryptus tenuiventris, Cresson, Proc. Acad. Phil. 1873, p. 134. no. 3 (♂)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

10. **Cryptus celaya.**

Cryptus celaya, Cresson, Proc. Acad. Phil. 1873, p. 135. no. 4 (♀)[1].

Hab. Mexico, Mirador[1] (*Dr. Sartorius*).

11. **Cryptus arcuatus.**

Cryptus arcuatus, Cresson, Proc. Acad. Phil. 1873, p. 135. no. 5 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

12. **Cryptus transversus.**

Cryptus transversus, Cresson, Proc. Acad. Phil. 1873, p. 136. no. 6 (♀)[1].

Hab. Mexico, Mirador[1] (*Dr. Sartorius*).

13. **Cryptus angulatus.**

Cryptus angulatus, Cresson, Proc. Acad. Phil. 1873, p. 136. no. 7 (♀)[1].

Hab. Mexico, Cordova [1] (*Sumichrast*).

C. *Thorax black and white, wings hyaline.* (Species 14.)

14. **Cryptus citus.**

Cryptus citus, Cresson, Proc. Acad. Phil. 1873, p. 137. no. 8 (♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

D. *Ferruginous, wings banded with fuscous, or fuscous banded with yellow.*
(Species 15 to 22.)

15. **Cryptus solabilis.** (Tab. IX. fig. 15.)

Ferrugineus, nitidus; antennis nigris, medio annulo flavo, basi rufa; alis hyalinis, apice fumatis, nervis nigris; apice tarsorum nigro. ♀.
Long. 10 millim.

Hab. Panama, Bugaba 800 to 1500 feet (*Champion*).

Antennæ, if anything, longer than the body, bare, the third joint nearly one fourth longer than the fourth; apex thickened and compressed as in *Joppa*. Face flat, pallid; clypeus rounded at the apex, flat, a shallow fovea on either side at the base; teeth of the mandibles black. If anything, the head is broader than the mesothorax. Mesonotum finely punctured, the furrows obsolete. Scutellum shining, narrow, the apex longitudinally striated (the striations large, and continued to the postscutellum); the sides keeled, the keel sharp, and very large on the sides of the fovea at the base. Metathorax rugose, with two nearly straight, transverse furrows; tubercles acute, double as long as broad, curved. Petiole longish, curved, the postpetiole shining; the rest of abdomen shining, impunctate, the apex acute, a little compressed, and covered with longish yellow hair; ovipositor short, not longer than the second segment, the sheath pallid red.

16. **Cryptus unifasciatus.**

Ferrugineus; tarsis posticis annuloque antennarum, flavis; alis hyalinis, medio fumato. ♀.
Long. 9–10 millim.

Hab. Panama, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

Head, pro- and mesothorax, finely and closely punctured, opaque, covered with short, glistening white pubescence; face projecting in the centre; apex of the clypeus shining, scarcely transverse; apices of the mandibles piceous-black. The antennæ originate from distinct tubercles; they are stout, and the third joint is longer than the fourth.

Mesonotal sutures almost obsolete. Scutellum carinated at the sides throughout. Metanotum coarsely rugose; there are two transverse carinæ, both curved upwards, in the centre, the upper one joined to the base of the metanotum by two short keels, which form a small triangular area; tubercles stout, double as long as broad. Petiole shining, smooth, the postpetiole obsoletely punctured; the rest of the abdomen finely and closely punctured, opaque. Ovipositor a little longer than the petiole. The hind legs are much darker than the others, the ferruginous tinge being obscured with fuscous. Areolet square; stigma blackish, reddish at extreme base. The base of the wings is slightly obscured with fuscous.

17. **Cryptus xanthostigma.** (Tab. IX. fig. 14.)

Cryptus xanthostigma, Brullé, Hist. Nat. Ins. Hymén. iv. p. 190.

Hab. Mexico, Ciudad in Durango (*Forrer*); Guatemala, near the City, Cerro Zunil (*Champion*).

Dark ferruginous; the flagellum of the antennæ (except joints 3–10, which are yellowish-white), the fovea at the base of the scutellum, its keels, the apex of the mesonotum, the base of the second and third abdominal segments, the ovipositor, and the greater part of the four posterior legs, black. Wings fuscous, a broad yellow band in the middle of both, and a smaller one (which does not go completely across, and is narrowed posteriorly) at the apex of the stigma, which is yellow, black at the apex. Opaque, finely and closely punctured, the metathorax more strongly than the rest of the body; covered with a close glistening pubescence, which is, if anything, stronger laterally. Metanotum with blunt tubercles, not very clearly differentiated from the transverse keel, which does not extend completely across, being interrupted in the middle. Abdomen very finely and closely punctured, the punctuation almost hidden by the white, short pubescence. Petiole shining, nearly impunctate. Ovipositor, if anything, longer than the abdomen. The hind legs are black; the middle pair black, dark ferruginous in front; the front pair ferruginous; the coxæ and femora inclining to ferruginous behind. Areolet 5-angled, the lateral nervures scarcely converging above, the outer ones bullated; below, the recurrent nervure is received a little beyond the middle.

The male has the antennæ longer, and the joints 3–13 of the flagellum yellowish, with a tinge of ferruginous, and closely pilose. The four anterior legs have less black, the tarsi are lighter in tint, and the two basal joints of the hind pair are yellowish, ferruginous at the extreme apex. The pubescence on the thorax is denser (especially on the metathorax), and above it is darker; the upper transverse keel on the metanotum is more distinct (in the female it is semiobsolete); the first segment of the abdomen is longer and more slender, and the postpetiole bears a few punctures.

The amount of black on the legs varies in both sexes, the black running into ferruginous. I rather think the species I have described is not identical with *C. xantho-*

stigma, but as there are several species, not very clearly differentiated, of similar coloration, I prefer not to consider it distinct.

18. **Cryptus calipterus.**

Cryptus calipterus, Say, Bost. Journ. Nat. i. p. 234[1]; Complete Writings, ii. p. 690; Cresson, Trans. Am. Ent. Soc. iv. p. 158[2].

Hab. North America, Texas[2].—Mexico[1].

19. **Cryptus fulvus.**

Cryptus fulvus, Taschenberg, Zeits. f. d. ges. Naturwiss. xlviii. p. 66 (1876)[1].

Hab. Mexico[1].

20. **Cryptus hebetis.** (Tab. IX. fig. 13.)

Ferrugineus, apice antennarum læte, apice metanoti abdominisque segmento 3° basi, nigris; tarsis posticis flavis; alis flavo-hyalinis, fusco-bifasciatis. ♀.

Long. 11 millim.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Antennæ as long as the thorax and abdomen together; of nearly uniform thickness; the middle joints yellowish, the base ferruginous; the third joint as long as the fourth. Head as broad as the mesothorax, finely rugose, opaque; a blunt, large, semicircular tubercle below the antennæ; clypeus rounded at the apex, projecting, the oral region and two irregular lines on the face blackish; the depression above the antennæ shining, blackish. Thorax finely rugose; mesonotal furrows obsolete. Scutellum elevated above the scutum, having a gradual slope to the apex; the sides hollowed. Metathorax hollowed in the centre behind, with an oblique slope, with two large broad tubercles, the carinæ obsolete; below the spiracles hollowed, the apex transversely and indistinctly striated; all the sutures broadly black. Abdomen finely and closely punctured, opaque; the basal half of the petiole black, shining, almost impunctate, the apical half and the postpetiole finely punctured; the apex broad compared to the base. The apices of both wings are smoky, the hind pair faintly; the apical fascia extends from the middle of the stigma to a little beyond the areolet, the basal fascia to either side of the basal nervure; areolet longer than broad, bluntly 5-angled, the lateral nervures converging above.

21. **Cryptus fraternans.**

Hab. Mexico, Northern Sonora (*Morrison*).

Identical in coloration with *C. hebetis*, except that the thoracic sutures are scarcely black; differing otherwise in having the antennæ a little shorter and stouter; in the face below the antennæ projecting more; in the clypeus being surrounded behind by a much more distinct furrow; the head also bearing no black at all; in the scutellum

being broader and not so much hollowed at the sides; in the metanotum having two distinct keels, both bending upwards in the middle; in the tubercles being very obtuse; in the abdomen being broader, the petiole without black; in the areolet projecting much more, and sharper on the lower side, the recurrent nervure, too, not being received in the middle, as in *C. hebetis*; and the ovipositor a little longer, the sheaths in both species being rufous. In *C. fraternans* the mesosternal furrow is semiobsolete; in *C. hebetis* it is deep and conspicuous.

Allied to the Texan *C. sororius*, Cresson.

22. **Cryptus guatemalensis.**

Ferrugineus; lineis mesonoti, apice tibiarum posticarum læte terebraque, nigris; antennis longis, rufis, articulis 3°, 4° et apicibus læte, nigris; alis flavo-hyalinis fusco-bifasciatis, stigmate flavo, apice nigro. ♀.
Long. 12 millim.

Hab. GUATEMALA, Dueñas (*Champion*).

Antennæ longer than the body, the base of the flagellum thin, the rest thicker. Head broader than the thorax, finely and closely punctured, except the depression above the antennæ; sparsely covered with a silvery pile; front broadly projecting below the antennæ, the projecting part separated by a depression from the clypeus, which also projects; tips of the mandibles black. Thorax opaque, finely and closely punctured; the mesonotal furrows obsolete, except in front; two broad black lines in the centre, and a shorter one at the side, black. Scutellum flattish, the sides not hollowed. Metathorax with a gradual slope, the apex hollowed, and with two transverse keels in the middle; without tubercles. Petiole rather broad; the postpetiole punctured, the punctures wide apart, the extreme apex shining and impunctate. Abdomen finely punctured, the junction of the segments shining, impunctate; ovipositor as long as the hind tibiæ. Anterior tibiæ and the hind tarsi obscure yellow. Areolet 5-angled, the lateral nervures converging towards the top, the bottom forming a moderately sharp angle; the recurrent nervure received a little before the middle. The fasciæ on the wings are as in *C. fraternans* and *C. hebetis*, but narrower, and scarcely so deep in tint.

Easily known from the two preceding species by the longer and thinner antennæ, which have the fourth and fifth joints black, and the middle not yellowish; in the meso notum being marked with black, the abdomen without a black band on the third segment; in the punctured postpetiole, the black sheath of the ovipositor, &c. The mesosternal suture is indistinct.

JOPPIDIUM.

Joppidium, Walsh, Trans. St. Louis Acad. Science, iii. p. 69.

This genus, so far as at present known, is peculiar to America. The antennæ in the female are like those of *Joppa*, but those of the male differ; it also diverges from that

genus in the ovipositor being long, the petiole longer and more slender, and in the second segment of the abdomen having no gastrocœli.

1. Joppidium dubiosum.

Joppidium dubiosum, Cresson, Proc. Acad. Phil. 1873, p. 138 (♂ ♀)[1].

Hab. Mexico, Cordova [1] (*Sumichrast*).

2. Joppidium ardens.

Joppidium ardens, Cresson, Proc. Acad. Phil. 1873, p. 138 (♂ ♀)[1].

Hab. Mexico, Cordova, Isthmus of Tehuantepec [1] (*Sumichrast*).

3. Joppidium ruficolle. (Tab. IX. fig. 16.)

Ferrugineus; metathorace, coxis posterioribus, trochanteribus, femoribus tibiisque posticis, nigris; pedibus anterioribus fulvis, tarsis posticis (apice excepto) flavis; alis fuliginosis. ♂ ♀.

Long. 15–16 millim.; terebra 5 millim.

Hab. Mexico; Guatemala, San Gerónimo, San Joaquin in Vera Paz (*Champion*).

Antennæ scarcely so long as the abdomen and metathorax together; stout, thickened and compressed towards the apex; black, reddish at the base, a broad yellow ring a little beyond the middle. Head narrower than the mesothorax, retreating behind the eyes; covered sparsely with white pubescence, especially laterally, the vertex impunctate, the face with scattered punctures; clypeus shining and also punctured; tips of the mandibles black. Mesonotum shining, obsoletely punctured, the furrows deep; the pleuræ longitudinally and finely punctured. Scutellum shining, impunctate, covered with longish fuscous hair, not much raised above the mesoscutum, the fovea at the base not very deep. Metanotum above the upper transverse carina shining, punctured; below it strongly striated transversely; a broad deep furrow on either side; the second transverse carina obsolete, the first nearly straight; metapleuræ longitudinally striated. Petiole long, curved, shining, impunctate; the rest of the abdomen microscopically aciculate, covered with a microscopic down; the greater part of the third and the following segments entirely reddish. Coxæ and trochanters shining, impunctate, covered with long blackish hair. Areolet 5-angled, broader than long, a distinct angle on the lower side; the lateral nervures parallel.

The male has the antennæ longer and entirely black, except a small yellow ring; the thorax black from behind the base of the scutellum, and the abdomen entirely black; all the coxæ are black, and the middle femora blackish at the basal half, while the base only of the hind tarsi is yellow.

In most females the hind tibiæ are fulvous at the base.

4. **Joppidium cæruleipenne.** (Tab. IX. fig. 17.)

Ferrugineus, nitidus, lævis; femoribus, tibiis tarsisque posticis, nigris; flagello antennarum nigro, annulo albo; ♂ abdomine (basi excepta) nigro.
Long. 15–16 millim.

Hab. Panama (*Boucard*), David in Chiriqui (*Champion*).

Uniformly shining, impunctate, covered with a white pubescence. Antennæ stout, thickened and slightly compressed towards the apex. Stigmatic tubercles on the petiole distinct; a longish fovea on the top of the postpetiole.

5. **Joppidium donabile.**

Joppidium donabilis, Cresson, Proc. Acad. Phil. 1873, p. 139 (♂ ♀)'.

Hab. Mexico, Cordova [1] (*Sumichrast*), Valladolid in Yucatan (*Gaumer*).

6. **Joppidium yucatanense.** (Tab. IX. fig. 18.)

Ferrugineus; apice antennarum nigro, medio sordide flavo; alis nigris. ♀.
Long. 12 millim.; terebra fere 4 millim.

Hab. Mexico, Valladolid in Yucatan (*Gaumer*).

Antennæ as long as the thorax and abdomen together; stout, thickened towards the apex, the third and fourth joints equal. Head a little broader than the mesothorax, punctured and semiopaque, except above the antennæ; front projecting in the middle, a furrow on either side of it; clypeus projecting, a semitransverse furrow at its base; a distinct furrow runs down from the ocelli to the antennæ, through the centre of the depression. Mesonotum minutely punctured, the furrows distinct in front; the pleuræ longitudinally striated (the striations large and curved). Scutellum shining, faintly punctured. Metathorax strongly transversely punctured; the base (behind the upper transverse keel) aciculate and sparsely punctured; the second transverse keel interrupted in the middle; without tubercles. Petiole smooth, impunctate, and shining; the postpetiole raised a little in the centre, a longish depression at the sides. The remaining abdominal segments semiopaque, and finely and closely punctured; sheaths of the ovipositor black. Legs longish, stout. Areolet longer than broad, the lower side somewhat acutely angled, the recurrent nervure received a little before the middle; stigma black, obscure testaceous on the lower side.

7. **Joppidium fuscipenne.**

Cryptus fuscipennis, Brullé, Hist. Nat. Ins. Hymén. iv. p. 189. no. 5[1].

Hab. Mexico[1].

This species comes very near the preceding, but is probably distinct. The metathorax has "four elevated oblique lines," and is rugose on the back; the antennæ appear to

be entirely black, except the yellow middle ring; the second and third abdominal segments are marked on either side, at the base, with a large brown mark; the pleuræ only finely striated.

PHYGADEUON.

Phygadeuon, Gravenhorst, Ichneum. Europ. ii. p. 635.

A genus widely distributed over the temperate regions of the globe, and no doubt also in the warmer parts.

1 (2). Body and legs entirely rufous; stigma testaceous . . . . . *semifumatus.*
2 (3). Body and legs reddish; apex of abdomen, and more or less of femora, coxæ, and trochanters, black; stigma black, white at base . . . . *alpinus.*
3 (6). Thorax black, marked with white; metathorax pale testaceous; legs and abdomen pale honey-yellow.
4 (5). Wings hyaline; face black . . . . . *satageus.*
5 (4). Wings smoky; face white . . . . . *albicollis.*
6 (7). Thorax entirely black; antennæ with a white annulus; legs and abdomen honey-yellow . . . . . *zapotecus.*
7 (6). Thorax, antennæ, legs, and base of abdomen black, the remainder of abdomen rufous . . . . . *melanopoda.*

1. Phygadeuon semifumatus.

Ferrugineus; antennis nigris, basi rufa, medio flavo; tegulis flavis, abdominis basi nigra; alis subfumatis, stigmate fusco, basi pallida. ♂.
Long. fere 9 millim.

Hab. Mexico (*Sallé*).

Antennæ thickish, densely pilose, as long as the body, the third and fourth joints subequal. Head nearly as broad as the mesothorax, punctured, covered with silvery-white pubescence; front projecting, the middle forming an indistinct roundish tubercle; clypeus at the base surrounded by a semicircular furrow, the apex bluntly rounded; tips of the mandibles black, the palpi yellow. Thorax punctured; mesonotal sutures almost obsolete. Scutellum shining, yellowish, broad at the base, flattish, almost impunctate. Metathorax with a gradual slope, more shining than the mesonotum, covered (especially on the sides) with longish pale hair, and scarcely punctured; basal area distinct; supramedian area longer than broad; tubercles blunt, short. Abdomen shining, impunctate, covered (particularly on the sides) with pale pubescence. Areolet with a distinct projecting angle on the lower side; the lateral nervures converging.

2. Phygadeuon albicollis.

Rufus; antennis, vertice, pronoto, mesonoto apiceque tarsorum posticorum, nigris; facie, orbitis, prosterno, linea pronoti, tegulis maculaque mesopleurali, albis; alis fumatis. ♀.
Long. 7 millim.

Hab. Panama, Bugaba (*Champion*).

Antennæ thick, semi-involute, nearly as long as the thorax and abdomen together; the third joint a little longer than the fourth. Head thick, white, except the middle of the vertex and the occiput; clypeal foveæ large; face covered with a longish white pubescence. Thorax impunctate; metapleuræ obscurely striated; middle area on the metanotum broader than long, the other areæ distinct; spiracular area obscurely transversely striated. The prothorax is black, except the prosternum and a broad white line on the pronotum; the mesonotum is entirely black (unless the scutellum may be white, a fact which I cannot make out, the large pin going through it); below the tegulæ the mesopleuræ are, for the greater part, white; the suture of the metapleuræ is obscure white; the metathoracic tubercles are large, semiacute. Abdomen shining, impunctate. Legs stout; four anterior coxæ and trochanters yellowish-white, the rest of the legs reddish. Areolet 5-angled; outer nervure bullated.

3. **Phygadeuon satageus.**

Phygadeuon satageus, Cresson, Proc. Acad. Phil. 1873, p. 140 (♀)[1].

Hab. MEXICO, Cordova[1] (*Sumichrast*).

4. **Phygadeuon zapotecus.**

Phygadeuon zapotecus, Cresson, Proc. Acad. Phil. 1873, p. 40 (♂)[1].

Hab. MEXICO, Orizaba[1] (*Sumichrast*).

5. **Phygadeuon alpinus.**

Rufus; apice antennarum abdominisque apice nigris, femoribus tibiisque posticis fuscis; flagello antennarum medio flavo; alis hyalinis, stigmate nigro, basi alba. ♀.

Long. 8 millim.

Hab. MEXICO, Ciudad in Durango 8100 feet (*Forrer*).

Antennæ stout, involute; the third joint not much longer than the fourth; the others becoming gradually shorter and a little thicker towards the apex. Head and thorax finely punctured, opaque; the clypeus shining, impunctate; mandibles black at the apex. Mesonotum more shining than the pleuræ, and less strongly punctured; covered with pale pubescence. Metathorax longish, the apex with an oblique slope, its centre hollowed and transversely striated; the upper median area longer than broad, its apex transverse and narrower than the central part; the base triangular; without tubercles. Postpetiole aciculate; the rest of the abdomen obscurely aciculated to the apex, which is shining and covered with longish white pubescence, the apex itself obliquely truncated; the ovipositor a little longer than the abdomen. Areolet broader than long; the outer nervure semiobsolete. Legs stout; the trochanters. hind coxæ, and femora more or less blackish.

6. **Phygadeuon melanopoda.** (Tab. X. fig. 22, ♀.)

Niger; abdomine (petiolo excepto) rufo; alis hyalinis, stigmate nigro. ♀.
Long. fere 7 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Head and thorax opaque, covered with pale pubescence, closely punctured, the thorax more strongly punctured than the head. Antennæ thick, involute; third joint about one fourth longer than the preceding, the others becoming gradually shorter, the apical joint being much broader than long. The mesonotum is more shining than the head or pleuræ; the punctures are not so closely pressed together; the sutures obsolete, except very slightly in front. Scutellum indistinctly keeled at the sides towards the base. Areæ on the metanotum distinct, the upper median area longer than broad, and rounded at the sides; tubercles large, broad. Petiole black, shining, indistinctly punctured; the base of the postpetiole black, the centre raised, a furrow on either side of the raised part; the rest of the abdomen shining, impunctate, broad, the apex obtuse; ovipositor about one half of the length of the abdomen. Areolet 5-angled, the lower side sharply angled; the lateral nervures converging at the top, the outer nervure faint.

MESOSTENUS.

Mesostenus, Gravenhorst, Ichneumon. Eur. ii. p. 750.

A genus of world-wide distribution, and of great extent.

A. *Body and legs black.* (Species 1 to 3.)

1. **Mesostenus pompiliformis.**

Niger; annulo antennarum albo; alis hyalinis, medio et apice fusco-fasciatis. ♀.
Long. 13 millim.; terebra 3 millim.

Hab. Guatemala, Sabo in Vera Paz (*Champion*).

Head and mesonotum opaque, very finely and closely punctured; sparsely covered with white pubescence; mesopleura shining and impunctate in the centre, the rest longitudinally striated; metapleuræ very coarsely longitudinally striated; mesonotum before the scutellum longitudinally striated. Scutellum smooth, shining, impunctate; the sides carinated along their entire extent; strongly gibbous, longer than broad. Metanotum coarsely rugose; there is a transverse carina which curves up into a half-circle in the middle; above it the punctuation is much weaker; spiracles large, oval; below them the notum is transversely striated; tubercles thick, somewhat oblique at the apex, and not much longer than broad. Petiole long, and, as well as the postpetiole, smooth, shining, impunctate; the second segment is semiopaque, the others opaque, covered with microscopic down, which is longer at the sides; the apical segment brownish; cerci short, blunt. Legs stout, longish, the hind femora

nearly as long as the abdomen; tarsi shorter than the tibiæ, covered, on the lower side, with stiff, bristle-like hair, ending at the apex of the joints in a stiff spine, that on the fourth joint being not much shorter than the claws; spurs longish, broad, acutely pointed at the apex. Areolet broader than long, open at the apex. The antennæ are stout, nearly as long as the body, becoming thicker towards the apex; the annulus is interrupted on the lower side.

This species is very closely allied to *M. nigerrimus*, Smith, but that species differs in having a stouter thorax, longer antennæ, in the clypeus being white at the apex, in the much more gibbous scutellum, which is more abrupt behind, where it is almost perpendicular, and is also shorter compared to its breadth; the hind legs are very much longer, they being (not counting the coxæ) 22 millim. in length, while those of *M. pompiliformis* are barely 17 millim., the length of the bodies in the two species being nearly the same. The central fascia in the fore wings in *M. nigerrimus* is larger, extends to the stigma, and is triangular in shape; that of *M. pompiliformis* not extending to the stigma, and being angled in the middle and broad at the top. Moreover, in *M. pompiliformis* there are two longish depressions below the antennæ, which are scarcely indicated in Smith's species.

2. **Mesostenus nigerrimus.** (Tab. X. fig. 20.)

Mesostenus nigerrimus, F. Smith, Descr. of New Species of Hymen. p. 231 [1].

Hab. Costa Rica, Caché [1] (*Rogers*).

3. **Mesostenus arctus.**

Mesostenus arctus, Cresson, Proc. Acad. Phil. 1873, p. 162 (♂)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

This species may be known from the two preceding by the wings being smoky only at the tips.

B. *Head, thorax, and abdomen not entirely black.* (Species 4 to 45.)

a. *Abdomen black, banded with white or yellow.* (Species 4 to 35.)

1. *Mesothorax entirely black.* (Species 4 to 6.)

4. **Mesostenus annulitarsis.** (Tab. X. fig. 15.)

Niger, flavo-maculatus; clypeo, orbitis, coxis, basi tibiarum annuloque tarsorum, flavis; petiolo flavo, medio nigro. ♀.

Long. 11 millim.; terebra 5·5 millim.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Antennæ longer than the body, thin, the annulus large. Head finely rugose, opaque; the orbits broadly all round, the palpi, the edge of the clypeus, and a large semicircular mark above it, yellow. Thorax opaque, finely rugose, the pleuræ more shining; the

sutures of the mesonotum not very distinct; scutellum broader than long, smooth and shining; the tegulæ, prosternum, the edge of the pronotum in the middle, the pleural tubercle, a large mark (broader than long) on the mesopleura, a much smaller mark immediately beneath the hind wings, an oblique longish mark on the metapleuræ, the scutellum (except at the apex), the carinæ in front of it, the metathoracic spines, and the space immediately surrounding them, yellow. Upper transverse keel on the metanotum distinct, the sides of the metathorax rugose; above the transverse keel finely punctured, below it obliquely striated, the striations (which are large) converging towards the centre; tubercles blunt, a little longer than broad. Petiole and postpetiole smooth and shining, impunctate; yellow, beneath and a large mark in the centre black; the postpetiole not clearly defined from the petiole, and becoming gradually thicker towards the apex. The rest of the abdomen semiopaque, finely punctured; the second and third segments narrowly banded with yellow at the apex, the band on the fourth interrupted in the middle, the fifth and sixth yellow at the sides, the seventh entirely yellow, except a black mark in the centre, and the eighth segment has a small black mark at the side; the ventral surface is entirely yellow. The four anterior coxæ and trochanters are yellow, except a round black mark on the outer side of the former; the hind coxæ are black, broadly yellow at the base and apex; the anterior femora are yellow beneath in the middle; the anterior tibiæ yellow, black at the base and apex; the middle and posterior tibiæ broadly yellow at the base; the anterior tarsi almost entirely black; the apical half of the basal joint of the middle tarsi is yellow; the posterior tarsi are yellow, broadly black at the base (especially) and apex. The wings are slightly smoky at the apex; areolet open at the apex, nearly square, angled where the recurrent nervure is received.

5. **Mesostenus vividus.** (Tab. X. fig. 18.)

Niger, flavo-maculatus; ore, facie orbitisque, flavis; pedibus flavis, femoribus nigro-lineatis, tibiis tarsisque, fulvis; abdominis basi segmentoque 2° laterali, flavis; alis hyalinis, stigmate nigro. ♀.
Long. 11 millim.; terebra 3·5 millim.

Hab. Guatemala, Zapote (*Champion*).

Antennæ longer than the body, stout, microscopically pilose. Head punctured roughly on the top; yellow, except behind and the centre of the vertex; mandibles edged with black. Thorax coarsely punctured; the scutellum punctured, longer than broad, the sides rather abrupt. Pronotum laterally, coarsely, longitudinally striated. A broad line on the edge of the pronotum, the tegulæ, the scutellar carinæ, the scutellum above, the postscutellum, the mesopleura almost entirely, a mark beneath the hind wings, a large, somewhat triangular, mark on the metapleuræ, and a large mark on either side covering the tubercles, yellow. Metathorax above the transverse keel (which bends sharply up in the middle) smooth, shining, impunctate; the rest coarsely punctured; tubercles long, stout, straight. Petiole and postpetiole shining, impunc-

tate, yellow, the apex of the petiole black; the postpetiole black, its apex fulvous. Gastrocœli transverse, fulvous. The abdomen is shining, impunctate; black, a large yellowish (inclining to fulvous) mark on either side of the second segment at the apex; the apical segments obscure fulvous. The four anterior legs are entirely yellow, except the line over the femora and the apices of the tarsi, which are black, the tibiæ and tarsi being, however, fulvous on the upper side; the hind legs are fulvous, except the coxæ behind, which are yellow, and the femora, which are black beneath and at the sides. Areolet minute, open in the middle at the apex, which is wider than the base. The lateral margin of the pronotum projects, especially in front, so that the prothorax is nearly transverse.

6. **Mesostenus admonitus.**

Mesostenus admonitus, Cresson, Proc. Acad. Phil. 1873, p. 160 (♂)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

It is quite possible that further observations may show that this is the male of *M. vividus*, but the mesopleuræ appear not to be largely yellow (Cresson says that the space "behind the base of the wings and a spot on each flank of the metathorax are yellow"), the hind coxæ are apparently black, marked with yellow, the apical margins of all the segments are yellow, and the posterior face of the metanotum is coarsely reticulated.

2. *Mesothorax with one yellow mark in the centre.* (Species 7 to 29.)

i. *Metathorax with lateral spines.* (Species 7 to 24.)

7. **Mesostenus intrudens.** (Tab. X. fig. 16.)

Mesostenus intrudens, F. Smith, Descr. of New Species of Hymen. p. 232[1].

Hab. Costa Rica, Irazu and Cache[1] (*Rogers*).

Black; the orbits all round, the face (except at the sides of the clypeus and a somewhat triangular mark going up from them), the clypeus, the apex of the labrum, the extreme base of the mandibles, the palpi, a line on the pronotum, the tegulæ, a line on the prosternum, the pleural tubercles, an oblique mark in the centre of the mesopleura, a somewhat oval mark on the metapleura, a mark under the hind wings, a mark at the apex of the middle lobe of the mesonotum, the scutellum, the postscutellum, the tubercles of the metanotum, and the apices of the abdominal segments, yellowish-white. Legs yellowish; the four anterior femora for the greater part, and the hinder femora entirely, black; hind coxæ black in front and largely so behind, the apices of the tarsi black. Vertex aciculated; mesonotum punctured, irregularly striated, transversely in front, more strongly and longitudinally behind; metanotum irregularly reticulated and striated; centre of the meso- and metapleuræ impunctate, shining, the rest striated, the

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metapleuræ more strongly; upper keel on the metanotum turned backwards in the middle; spines conical, thick, obtuse. Areolet as long as broad, almost entirely open at the apex, the recurrent nervure received in the centre.

8. **Mesostenus aztecus.**

Mesostenus aztecus, Cresson, Proc. Acad. Phil. 1873, p. 152 (♀)[1].

Hab. Mexico, Cordova [1] (*Sumichrast*).

9. **Mesostenus propinquus.**

Mesostenus propinquus, Cresson, Proc. Acad. Phil. 1873, p. 152 (♂ ♀)[1].

Hab. Mexico, Cordova [1] (*Sumichrast*).

10. **Mesostenus compactus.**

Mesostenus compactus, Cresson, Proc. Acad. Phil. 1873, p. 153 (♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

11. **Mesostenus discus.**

Mesostenus discus, Cresson, Proc. Acad. Phil. 1873, p. 153 (♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

12. **Mesostenus facilis.**

Mesostenus facilis, Cresson, Proc. Acad. Phil. 1873, p. 153 (♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

13. **Mesostenus chiriquensis.**

Niger, flavo-varius; pleuris sternoque flavis; pedibus flavis, supra nigro-lineatis. ♀.
Long. 14 millim.; terebra 2 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Antennæ stout, longer than the body, the yellow ring on the flagellum broad. Head punctured; yellow, except behind, the centre of the vertex, and the apex of the mandibles, which are black; vertex opaque, more roughly punctured than the rest; a stout carina runs down from the ocelli. Pro- and mesothorax punctured, the pleuræ longitudinally striated. Metanotum above the transverse keel closely punctured; a little way below it longitudinally striated, the striations converging towards the centre; the apical part transversely, the pleuræ longitudinally, striated. The pleuræ and breast are entirely yellow; the prothorax, except the prosternum and a small yellow mark on the edge, black; the mesonotum black, except a somewhat squarish mark on the disc; scutellum and postscutellum black; the scutellar carinæ are black. The metathorax is yellow, except a broad black band extending from the base to a little beyond the transverse carinæ, and prolonged as a black line down the centre and

halfway laterally round the outer side of the tubercles, which are longish, stout, and curved. Abdomen slender, yellow, above black (except at the base); the apex of the postpetiole yellow; the rest of the abdomen black, yellow at the apices of the segments and beneath. Legs yellow; the trochanters, femora, and four anterior tarsi black above; the hind tarsi yellow, black at the base and apex; spurs black; coxæ yellow, except two small black marks on the anterior, two larger ones on the middle, and two longish black stripes on the posterior pairs. Areolet square, stigma testaceous on the lower side.

14. **Mesostenus lamentarius.** (Tab. X. fig. 14.)

Niger, flavo-varius, apice scutelli flavo; petiolo flavo, medio nigro; coxis posticis flavis, nigro bilineatis. ♀. Long. 15 millim.; terebra 6 millim.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Antennæ moderately stout, as long as the body, five of the middle joints of the flagellum yellow. Head yellow, except behind, the vertex in the centre, and the mandibles, which are black; punctured, shining; a furrow runs down from the ocelli to the antennal depression. Pro- and mesothorax closely and rather strongly punctured, the pleuræ longitudinally striated; a smooth, shining, impunctate space in the centre of the mesopleura. The prosternum, a large mark on the edge of the pronotum, the tegulæ and the tubercle under them, a large oblique mark on the mesopleura, the mesosternum, a large mark under the hind wings, a mark (longer than broad and rounded at the base) on the apex of the middle lobe of the mesonotum, the scutellar carinæ, the apical half of the scutellum and postscutellum, yellow. Scutellum shining, longer than broad, covered with scattered punctures. Base of the metanotum coarsely punctured, the apex transversely, the pleuræ longitudinally, striated; on either side of the metanotum is a longish mark, covering the tubercles, and extending above them to the transverse carina as a triangular prolongation; on the pleura is a large oblique yellow mark; tubercles longish, curved. Petiole rather broad, furrowed in the centre above, the furrow extending to the apex of the postpetiole; the apex of the petiole and the base of the postpetiole are broadly black, the black incised at either end. The rest of the abdomen is aciculated; the gastrocœli, and the segments at the apex, yellow. Legs yellow, the tibiæ and tarsi inclining to fulvous, the trochanters and femora broadly lined with black above; the hind coxæ black behind, and with a longish yellow mark in the centre of the black; the extreme base of the hind tibiæ and the apices of the tarsi black. Areolet narrow, longer than broad; the apex of the wings slightly smoky.

15. **Mesostenus brachygaster.**

Very similar in coloration to *M. lamentarius*, except that the mandibles are yellow at the base; the mark on the disc of the mesonotum is longer than broad, not broader

than long, and semilunate; the scutellum has its sides yellow throughout, and has a black mark in the centre at the base; the top of the yellow marks on the metanotum is tongue-shaped, not triangular; the sides of the petiole are black, and there is a large black mark on the outer, and a smaller and broader one on the inner, side of the hind coxæ, the two being quite distinct. Structurally it differs in having the antennæ longer, the petiole broader, the tubercle at the side of the postpetiole much more distinct, and the abdomen shorter and much broader, the latter being (not counting the petiole) of the length of the head and thorax together, while that of *M. lamentarius* is considerably longer than that. The sculpture is nearly the same in both species.

16. **Mesostenus acceptus.**

Mesostenus acceptus, Cresson, Proc. Acad. Phil. 1873, p. 154 (♀)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

17. **Mesostenus veræpacis.**

Hab. GUATEMALA, Panzos in Vera Paz (*Champion*).

Similar in size and coloration to *M. lamentarius*, except that the mesosternum is black, the mandibles yellow at the base, and the yellow marks on the metanotum are tongue-shaped, not triangular, above the tubercles; differing otherwise from that species in the base of the metanotum not being so strongly punctured, the petiole not furrowed in the centre, the abdomen broader, the ovipositor a little shorter, the hind coxæ with only one large black mark on the outer side (not two joined at the apex), and the metathoracic tubercles shorter, thicker, and not curved.

18. **Mesostenus fraternans.**

Niger, flavo-maculatus; facie, orbitis coxisque anterioribus, flavis; pedibus fulvis. ♀.
Long. 17–18 millim.; terebra 9·5 millim.

Hab. MEXICO, Presidio (*Forrer*).

Antennæ stout, about as long as the body; the scape in the middle beneath, and a broad ring on the flagellum, yellow. Head punctured, the face projecting in the middle; mandibles black. Pro- and mesothorax punctured, the sides longitudinally striated; middle lobe of the mesonotum clearly defined by the furrows; scutellum longer than broad, punctured. The metanotum is shining, and punctured above the transverse keel, below it coarsely, transversely striated; the pleuræ are coarsely and longitudinally striated; the tubercles broad, hollowed on the outer side, punctured. The prosternum, a broad line on the edge of the pronotum, the tegulæ, the tubercles beneath them, the greater part of the mesopleuræ, a large mark under the hind wings, a large oblique mark on the metapleuræ, a mark at the apex of the middle lobe of the mesonotum, the scutellar carinæ, the scutellum, the postscutellum, and two longish marks on either side

of the apex of the metanotum, covering the similarly-coloured spines, yellow. Petiole and postpetiole shining, impunctate, the apex of the latter broadly yellow. The remainder of the abdomen aciculate, each segment banded with yellow at the apex. Sheath of the ovipositor stout, broad. Areolet small, narrow, nearly double as long as wide.

19. **Mesostenus montezuma.**

Long. 19 millim.

Hab. Mexico, Orizaba (*Bilimek*).

A species identical, in the coloration of the head, thorax, and abdomen, with *M. fraternans*, but of a stouter build, the thorax especially being broader; differing otherwise from that species in the legs being yellow (not fulvous), except the hind femora; in the four anterior femora being lined behind with black, and the posterior femora above and halfway down the sides black; in all the coxæ being black at the base, and the hinder pair bearing a broad black stripe down the centre on the outside, and a large, broader, and shorter mark on the inner side; the trochanters being also marked with black, especially at the base; and the apices of all the tarsi black.

20. **Mesostenus modicus.**

Mesostenus modicus, Cresson, Proc. Acad. Phil. 1873, p. 154 (♀)[1].

Hab. Mexico, Cordova[1] (*Sumichrast*).

21. **Mesostenus communis.**

Mesostenus communis, Cresson, Proc. Acad. Phil. 1873, p. 154 (♂ ♀)[1].

Hab. Mexico, Cordova, Orizaba[1] (*Sumichrast*), Mirador[1] (*Dr. Sartorius*).

22. **Mesostenus ornatifrons.** (Tab. X. fig. 17.)

Niger, capite flavo-maculatus; linea pronoti, scutello, segmentisque abdominis apice, flavis; pleuris, metathorace pedibusque, fulvis; alis hyalinis. ♀.

Long. 13 millim.; terebra 4–5 millim.

Hab. Mexico (*Sallé*); Costa Rica, Irazu (*Rogers*)?

Antennæ, if anything, longer than the body, thickened towards the apex; the yellow ring on the flagellum broad. Head punctured, the orbits, a triangular mark below the antennæ, the labrum, and a larger mark on the clypeus, yellow. The antennæ originate from distinct tubercles, which are yellow. Thorax punctured, semiopaque above; the sides obscurely striated. The tegulæ and the tubercle below them, the collar in front, a line on the edge, the anterior part of the mesopleuræ, the scutellum, and the postscutellum, yellow. Scutellum longer than broad, narrowed towards the apex. The metanotum is black ~~behind~~ the transverse keel; in front of it and the pleuræ fulvous, as are also the sides of the mesothorax. The metanotum ~~behind~~ the carina is opaque,

finely punctured; the part in front of it rugose; the apex and sides strongly striated and punctured; tubercles large, flat, transverse, hollowed in front; the lower transverse keel produced as a triangle in the centre. Petiole longish, not clearly defined from the postpetiole; black, a longish yellow line down its centre; the apex of the postpetiole and of all the other segments yellow, as are also the sides and ventral surface; the petiole is shining and impunctate, the other segments opaque, finely aciculate. Legs longish, the tarsi inclining to yellow. Areolet square, open at the apex, the recurrent nervure received in the middle.

M. communis agrees very closely in coloration with the present species, but differs in having a "furcate mark on the disc of the mesothorax," and the trochanters black at the base; there is no mark below the antennæ, and only one oblique mark on the pleura, and the petiole is entirely black.

What I take to be the male of *M. ornatifrons* (from Irazu) has the face entirely white, the apex of the hind tibiæ black, and the tarsi white, but otherwise coloured like the female. The mark on the mesonotum is a little longer than broad, with the sides rounded. The male of *M. communis* differs from this in having no tubercles on the metathorax, while in the Costa-Rican specimen they are nearly as distinct as in the female. It is quite possible that the latter may have a white mark on the mesonotum, it being perhaps hidden by the pin.

23. **Mesostenus striatifrons.**

Niger, flavo-pictus; macula mesonoti, scutello, postscutello, sterno, maculis pleuralibus, maculis 2 metanoti abdominisque segmentis basalibus, flavo-testaceis; pedibus flavo-fulvis, coxis, trochanteribus et femoribus posticis, nigro-lineatis; alis flavo-hyalinis, stigmate nigro. ♀.

Long. 14 millim.; terebra 6 millim.

Hab. British Honduras (*Blancaneaux*).

Antennæ stout, black, joints 8–15 clear white; nearly as long as the body, covered with microscopic pile. Head black; the orbits (except narrowly behind), the face, labrum, clypeus, and the base of the mandibles, yellowish-testaceous. Vertex longitudinally striated, the hollow above the antennæ shining, impunctate; face punctured, covered with white hair. Thorax strongly punctured, pleuræ (except a shining, impunctate space in the centre of the mesopleura) longitudinally striated; scutellum but very slightly punctured; the base of the metanotum strongly punctured and reticulated, the remainder transversely punctured. The prosternum, a line on the pronotum, the apex of the middle lobe of the mesonotum, the scutellum (except at the extreme base), the scutellar keels, the sutures, the sternum, a large oblique mark on the mesopleura (united posteriorly to the yellow breast), a triangular mark under the hind wings, a large mark on the metapleura, two elongated marks on the metanotum covering the spines and converging at the top, and the tegulæ and tubercles beneath them, yellowish-testaceous. Upper transverse keel on the metanotum distinct, bent upwards in the

middle, where there is a clearly defined area, which is longer than broad; lower keel absent; spines stout, obtuse. The apex of the metanotum has a somewhat abrupt slope, and is hollowed in the centre. Abdomen for the greater part yellowish-testaceous, the underside and the sides of the petiole, a large transverse mark at the base of the postpetiole, the greater part of the second segment, and of the other segments at the base (the apical one narrowly), black. Petiole rather broad, the postpetiole clearly defined from it, depressed in the centre at the base, the sides margined and projecting above over a somewhat oblique hollow; the sides of the petiole bearing semioblique, thick keels; the second and following segments finely and closely punctured. Legs stout, the hind coxæ strongly punctured; four anterior coxæ black at the base, the hind pair with a broad black band down the centre on the outside, and a short one on the inner side at the apex; all the trochanters and femora lined above with black; tarsi black at the tips, covered on the lower side with stout bristle-like hair. Areolet narrow, longer than broad; the outer nervure bullated, nearly interstitial.

24. **Mesostenus corpulentus.**

Hab. Mexico, Orizaba (*Bilimek*).

Very similar in coloration and punctuation to the preceding species, but larger (17 millim.; terebra 5 millim.). The head is black, there being only a short line united to the oblique mark on the mesopleura along the hinder part of the mesosternal suture; the two marks on the metanotum are shorter and broader, and do not converge above; the spines on the metathorax are short, blunt, and not brought to a point at the apex, being triangular, looked at from the side. The punctuation on the metathorax is stronger, and runs more into reticulations at the sides and base. The femora are not clearly lined with black above, and the hind coxæ have a fuscous-black mark at the base, not a black broad band down the centre. Wings hyaline, nervures testaceous, and the areolet is wider.

ii. *Metathorax without spines.* (Species 25 to 29.)

25. **Mesostenus nigrispina.**

Niger; annulo antennarum, ore, facie, orbitis, prosterno, linea pronoti, macula mesonoti, scutello, abdominis segmentis apice tarsisque posticis, albis; pleuris, sterno, maculis 2 metanoti pedibusque, fulvis; alis hyalinis, nervis nigris. ♀.

Long. 11 millim.; terebra 4 millim.

Hab. Mexico, Valladolid in Yucatan (*Gaumer*).

Antennæ as long as the body, slightly thickened towards the apex. Head rather narrow, impunctate; tips of the mandibles black. Thorax shining, impunctate, pleuræ obscurely and very finely striated. Metanotum beyond the upper transverse keel transversely striated; the transverse keel is straight, and there are no tubercles or spines.

Metathorax with a gradual slope from the base to the apex; the base is black, except at the edge of the pleuræ, and the black is continued down the centre as a black band, which becomes narrower towards the apex. Abdomen shining, impunctate; all the segments broadly white at the apex, the ventral surface being also white. Legs longish, slender; the apices of the hind femora, tibiæ, and tarsi, black; the base of the tarsi and the spines being also black. The mark on the mesonotum is large and broad, the sutures are distinct, and the notum on either side of the black postscutellum is coloured like the pleuræ.

26. **Mesostenus chichimecus.**

Mesostenus chichimecus, Cresson, Proc. Acad. Phil. 1873, p. 155 (♀)[1].

Hab. Mexico, Orizaba, Cordova [1] (*Sumichrast*).

27. **Mesostenus admirandus.**

Mesostenus admirandus, Cresson, Proc. Acad. Phil. 1873, p. 155 (♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

28. **Mesostenus arcuatus.**

Mesostenus arcuatus, Cresson, Proc. Acad. Phil. 1873, p. 156 (♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

29. **Mesostenus admotus.**

Mesostenus admotus, Cresson, Proc. Acad. Phil. 1873, p. 156 (♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

3. *Mesothorax with two yellow lines on the disc.* (Species 30 to 32.)

30. **Mesostenus megapoda.** (Tab. X. fig. 19.)

Niger, flavo-varius; femoribus supra apiceque tibiarum posticarum, nigris; alis hyalinis, apice fumatis. ♀.
Long. 14 millim.; terebra 4 millim.

Hab. Guatemala, El Tumbador (*Champion*).

Antennæ stout, not much longer than the body. Head punctured, the face more strongly transversely striated in the centre, the centre of the vertex aciculate; front projecting, with two black lines running down the centre to the mandibles round the sides of the clypeus; the latter is blackish round the edge; mandibles black, yellow at the base. Mesonotum aciculated, with some scattered punctures; the pleuræ striated in the middle; base of the metanotum scarcely punctured, the rest strongly striated, reticulated below the spiracles. Tubercles longish, a mere dilatation of the carina. Scutellum not much longer than broad, finely punctured, rounded at the apex. The head is yellow, except the centre of the vertex and behind; the prosternum, the tegulæ, and

the tubercle below them, the greater part of the mesopleura, a mark below the hind wings, the greater part of the metapleura (forming a large oval mark), a broad line on the edge of the pronotum, two longish marks on the mesonotum, the scutellum, a somewhat lunate mark on either side of the metanotum, and a longish mark between them, and two longish somewhat oval marks on the apex of the metanotum, yellow. First abdominal segment black, the apex yellow; second with the apex broadly yellow; third yellow, with two oblique marks and the base and the apex, black; fourth black, the apex yellow; the rest yellow, as is also the ventral surface. Legs yellow; the base and apex of the four posterior trochanters, a mark on the lower side of the hind coxæ at the base, and a larger and longer mark on the outer side, the femora above, and the apices of the hind tibiæ broadly, black. Areolet longish, widest at the base, angled where the recurrent nervure is received, the apical nervure faint.

31. **Mesostenus costaricensis.** (*Mesostenus nicaraguensis*, Tab. X. fig. 13.)

Niger, flavo-varius; apice scutelli, pleuris sternoque flavis; pedibus flavis, femoribus supra nigris; alis hyalinis. ♀.

Long. 13 millim.; terebra 5 millim.

Hab. Costa Rica, Irazu 6000 to 7000 feet (*Rogers*).

Antennæ stout, longer than the body, the yellow ring on the flagellum not very broad. Head yellow, except behind; the centre of the vertex and the mandibles punctured. Thorax strongly punctured; the tegulæ, the tubercle beneath them, the edge of the pronotum, the mesopleura (except the suture and immediately beneath the wings), two lines on the mesonotum, the scutellar carinæ, the apical half of the scutellum, the postscutellum, two large marks on the apex of the metanotum (covering and extending above the spines), and the greater part of the metapleura, yellow. Scutellum impunctate. Base of the metanotum almost impunctate, the apex transversely, the sides longitudinally, striated; spines stout, curved. First abdominal segment yellow, a large black band at the apex of the petiole; second and third segments black, yellow at the apex; fourth segment yellow, black at the base; the other segments yellow. The anterior coxæ have a small black mark at the side, and the hind coxæ have a large black line; the trochanters in part, and the femora above, black. Areolet narrow, longer than broad.

32. **Mesostenus longipes.**

Niger, flavo-varius; pleuris, sterno scutelloque, flavis; pedibus flavis, anterioribus femoribus tibiisque posticis supra, nigro-lineatis.

Long. 13 millim.

Hab. Costa Rica, Cache (*Rogers*).

Antennæ stout, the yellow ring on the flagellum interrupted on the lower side. Head punctured, yellow behind, the middle of the vertex and the mandibles black. Thorax coarsely punctured, reticulated in the centre of the mesonotum and pleuræ;

scutellum semireticulated, the centre of the metanotum reticulated, the pleuræ less distinctly; the sides of the mesonotum at the base finely reticulated. The pleuræ are yellow, except the sutures broadly, and a broad line along the fore part of the sternal furrow; the edge of the pronotum has a broad yellow mark; the tegulæ, the tubercles beneath them, two elongated lines on the mesonotum, the scutellum, the postscutellum, and two large marks on the metanotum, covering and extending above the tubercles, yellow. Scutellum longer than broad, contracted from the middle to the apex, the anterior part carinate. Metathoracic spines short, thick, blunt. Petiole black, yellow along the sides, the apex of the postpetiole broadly yellow. The second and third segments of the abdomen black, yellow at the apex; the other segments yellow. Legs longish, the hind pair much longer than the body; the four anterior trochanters and the femora and tarsi lined with black above; posterior coxæ with a broad black line; the trochanters, femora, and tibiæ to near the apex lined with black above; the apex of the hind tarsi black. Areolet small, open at the apex.

A shorter and much broader and stouter insect than *M. costaricensis*, and easily known from it by the reticulated thorax, the wholly yellow scutellum, the black scutellar carinæ, the much shorter and thicker metathoracic spines, the black-lined tibiæ, and the much longer hind legs.

4. *Mesothorax with a white line on each lateral lobe and a white mark on each side of the middle lobe.* (Species 33 and 34.)

33. **Mesostenus euryaspis.**

Niger; facie, orbitis læte, pleuris, maculis mesonoti, metanoto (medio excepto), abdominisque segmentis apice, flavis; pedibus fulvis; coxis flavis, posticis nigro-bilineatis; alis hyalinis.
Long. 14 millim.; terebra fere 4 millim.

Hab. Mexico, Presidio (*Forrer*).

Antennæ longer than the body, the scape beneath and a broad ring on the flagellum yellow. Head punctured, the apex of the mandibles, the vertex in the middle, and the posterior part (except the orbits) black, the rest yellow. Thorax punctured, the punctures running into striations on the sides; the basal part of the metanotum semirugose, the middle longitudinally rugose-striate, the apex transversely so; metapleura rugose. The pleuræ are yellowish, except the sutures, a longitudinal line on the mesopleuræ, and the edge of the collar in front; mesonotum black, the edges of the middle lobe and two shorter lines at its base inside from these, the carinæ in front of the scutellum, the scutellum, the postscutellum, and the metanotum (except the space enclosed by the two transverse keels), yellow. Scutellum punctured, quadrate, almost broader than long. Metathoracic tubercles broad, short. First abdominal segment yellow, a black mark towards the apex; second segment black, with a fulvous transverse mark at its base, its apex and also those of the other segments, the sides and ventral surface, yellow. The

mesosternal suture broad, deep. Legs longish; the hind tarsi broadly in the middle, and the fore legs in front, yellow; there is a small black mark on the anterior coxæ, a larger one on the middle coxæ, and two large black lines on the hind coxæ. Areolet, if anything, broader than long; the apical nervure distinct; the recurrent nervure received in the middle. The apex of the wings slightly smoky.

A narrowish insect.

34. **Mesostenus stupidus.**

Mesostenus stupidus, Cresson, Proc. Acad. Phil. 1873, p. 159 (♀)[1].

Hab. MEXICO, Orizaba[1] (*Sumichrast*).

5. *Mesothorax with a central yellow stripe.* (Species 35.)

35. **Mesostenus abactus.**

Mesostenus abactus, Cresson, Proc. Acad. Phil. 1873, p. 160 (♀)[1].

Hab. MEXICO, Mirador[1] (*Dr. Sartorius*).

b. *Abdomen wholly or for the greater part reddish.* (Species 36 to 45.)

36. **Mesostenus mexicanus.**

Mesostenus mexicanus, Cresson, Proc. Acad. Phil. 1873, p. 157 (♂ ♀)[1].

Hab. MEXICO, Orizaba, Cordova[1] (*Sumichrast*).

37. **Mesostenus lassatus.**

Mesostenus lassatus, Cresson, Proc. Acad. Phil. 1873, p. 157 (♂)[1].

Hab. MEXICO, Orizaba[1] (*Sumichrast*).

38. **Mesostenus moratus.**

Mesostenus moratus, Cresson, Proc. Acad. Phil. 1873, p. 158 (♂ ♀)[1].

Hab. MEXICO, Orizaba, Cordova[1] (*Sumichrast*).

39. **Mesostenus absolutus.**

Mesostenus absolutus, Cresson, Proc. Acad. Phil. 1873, p. 158 (♂ ♀)[1].

Hab. MEXICO, Cordova[1] (*Sumichrast*).

40. **Mesostenus novatus.**

Mesostenus novatus, Cresson, Proc. Acad. Phil. 1873, p. 159 (♀)[1].

Hab. MEXICO, Mirador[1] (*Dr. Sartorius*).

41. **Mesostenus incertus.**

Mesostenus incertus, Cresson, Proc. Acad. Phil. 1873, p. 161 (♂ ♀)[1].

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*).

42 **Mesostenus parvituberculatis.** (Tab. X. fig. 21.)

Niger, flavo-varius; abdomine rufo; pedibus flavo-fulvis; coxis anterioribus flavis; femoribus supra nigro-lineatis; alis hyalinis. ♀.
Long. 13 millim.; terebra 5·5 millim.

Hab. Guatemala, San Juan in Vera Paz (*Champion*).

Antennæ stout, dilated a little towards the apex; the yellow ring on the flagellum broad. Head punctured, the vertex not so strongly; a straight keel leading down from the ocelli to the antennæ; yellow behind, the centre of the vertex and the mandibles black. Thorax strongly punctured, the mesopleura shining and impunctate, the metapleura longitudinally striated, the metanotum irregularly reticulated. Scutellum oval, with some large punctures. Metathoracic tubercles mere short dilatations of the carina. Thorax black; a mark on the side of the prothorax, a line on its edge, the tegulæ, the tubercle beneath them, a large mark on the mesopleura, a small one beneath the hind wings, the greater part of the metapleura, two lines on the disc of the mesonotum, the scutellum, and two large marks covering the metathoracic tubercles, yellow. The femora incline to reddish, the four anterior ones yellowish in front; tibiæ and tarsi fulvous, tinged with yellow; the four anterior femora are lined with black behind, the posterior femora have more than the apical half for the greater part black; the hind coxæ are marked with black at the base.

43. **Mesostenus animatus.**

Mesostenus animatus, Cresson, Proc. Acad. Phil. 1873, p. 161 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

44. **Mesostenus pertenuis.**

Mesostenus pertenuis, Cresson, Proc. Acad. Phil. 1873, p. 162 (♂)[1].

Hab. Mexico, Cordova[1] (*Sumichrast*).

45. **Mesostenus collaris.**

Mesostenus collaris, Cresson, Proc. Acad. Phil. 1873, p. 162 (♂)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

POLYCYRTUS.

Polycyrtus, Spinola, Ann. Soc. Ent. Fr. x. p. 154.

This generic group has the general form of the body and neuration of *Mesostenus*; but it differs from the typical forms of *Mesostenus* in having a more or less well-developed spine on the front, and in having the mesonotum divided into three well-developed lobes. Some authors regard *Polycyrtus* as a mere section of *Mesostenus*; but in view of the great extent of that genus, I prefer, if only as a matter of convenience, to keep it distinct from it.

So far as I know, *Polycyrtus* is less numerously represented in South and Central America than *Mesostenus* proper. In both groups there is considerable variation in the form of the body, but as a rule the species of *Polycyrtus* are more slenderly built. The form of the areolet varies, but is generally very small; often it is open at the outer side. There is great variation in the size of the metathoracic spines; sometimes they are completely obsolete, and this may also be the case with the transverse keels.

A. *Body black and yellow.* (Species 1 to 24.)

The Central American species of this section known to me may be recognized by the following table:—

1 (2). Metathorax coarsely punctured . . . . . *chontalensis.*

2 (1). Metathorax impunctate or nearly so.

3 (8). Hind tibiæ entirely black behind.

4 (7). Central black line on the metanotum broadly dilated at the transverse keel; metatarsus not entirely yellow.

5 (6). Metapleuræ coarsely punctured, the black transverse line on the metanotum joined to the spiracles; apex of the wings smoky; body stout . . . . . *collinus.*

6 (5). Metapleuræ scarcely punctured, the black transverse line on the metanotum not joined to the spiracles; apex of the wings clear hyaline; body slender . . . . . *confirmatus.*

7 (4). Central black line on the metanotum not dilated at the transverse keel; the black on the second abdominal segment not indented in the middle; metatarsus yellow . . . . . *nigritibialis.*

8 (11). Tibiæ broadly black at the base; metanotum not broadly black, and without a transverse yellow mark through the black.

9 (10). A large yellow mark produced on either side at the apex on the base of the second abdominal segment; no furrow down the centre of the black longitudinal line on the metanotum; spines on the metathorax shortish, thick; wings hyaline . . . . . *blanditus.*

10 (9). A small yellow mark, wider than long, at the base of the second abdominal segment, a distinct furrow down the centre of the metanotum; wings smoky, especially at the apex; spines long, acute . *guatemalensis.*

11 (12). Hind tibiæ black at the base and apex; metanotum for the greater part black, a yellow transverse line near the base; a large yellow mark close to the base of the black on the second abdominal segment . . . . . *obtusispina.*

12 (11). Tibiæ yellow or fulvous.

13 (14). Hind legs fulvous; coxæ not marked with black; femora not lined with black.

14 (15). Metanotum broadly black; the black on the second abdominal segment transverse at the base . . . . . *fulvipes.*

15 (14). Metanotum yellow, except a black cross; the black on the second abdominal segment deeply indented at the base . . . . . *cruciatus.*

16 (13). Femora lined with black; coxæ with a large black mark.

17 (18). The central longitudinal black line on the metanotum joined to the spiracles by a black line; the black on the second abdominal segment sharply indented at the base . . . . . *fulvofemoratus.*

18 (19). The central black line on the metanotum not joined to the spiracles by a black line; the black on the second abdominal segment rounded or transverse at the base.

19 (20). Central black line on the metanotum broadly dilated at the base, almost touching the spiracles; no furrow in its centre close to the keel; the black in centre of the second abdominal segment broad at the base . . . . . *montezuma.*

20 (19). Central line scarcely dilated at the base, a furrow down its centre; the black on the second abdominal segment narrow . . . . . *canaliculatus.*

1. **Polycyrtus obtusispina.** (Tab. X. fig. 1, metanotum and base of abdomen.)

Niger, flavo-varius; lineis 2 mesopleuralibus, macula ad apicem abdominis segmenti 1[i], basi apiceque tibiarum posticarum, nigris; alis hyalinis, apice fumatis, stigmate nigro. ♀.

Long. 18 millim.; terebra 8 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ stout, nearly as long as the body; the basal joints beneath and the seventh to eleventh joints, white. Head yellow, posteriorly and the vertex in the centre black; mandibles punctured, the tips blackish; frontal spine conical. Thorax black; the prosternum beneath, a broad line on the edge of the pronotum, the tegulæ, a line on either side of the apex of the middle lobe of the mesonotum, the scutellar keels, the apex of the scutellum, the postscutellum, and the sutures, yellow; mesopleuræ yellow, except a black mark beneath the wings enclosing the yellow tubercles, a broad oblique mark in the centre, and the mesosternal suture broadly, black. Metanotum black above the transverse keel, except a curved mark in front of the spiracles; from these a broad black line runs down the side to a little below the spines, where it projects outwards; and in front of the spines these lateral lines are united by a broad transverse one, while from the centre of this latter a short, moderately thick line runs down to the apex. Metapleuræ yellow, except the suture, which is broadly black, and the above-mentioned

lateral prolongation from the spiracular black line; obsoletely punctured; spines short, thick, obtuse. First abdominal segment black beneath, a large black mark above, leaving a broad yellow band at the apex; second segment broadly at the apex, narrowly laterally, yellow, a yellow mark (somewhat pear-shaped, but with the base transverse) at the base of the black portion; the other segments yellow, black at the base; ventral surface entirely yellow. Ovipositor black, scarcely so long as the body. Legs yellow; the coxæ with a broad black mark on the outer side, the hind pair also black at the base on the lower side; all the femora and the four anterior tibiæ and tarsi lined with black above, the hind tibiæ broadly black at the base and apex. Wings slightly smoky, nervures black; areolet longish, narrow, the apical nervure bullated in the centre, the recurrent nervure almost interstitial.

The largest of the Central-American species, and *inter alia* easily known by the broad transverse yellow stripe on the black basal part of the metanotum and by the yellow mark in the centre of the black on the second abdominal segment.

2. **Polycyrtus melanoleucus.**

Mesostenus (*Polycyrtus*) *melanoleucus*, Brullé, Hist. Nat. Ins. Hymén. iv. p. 204; Cresson, Proc. Acad. Phil. 1873, p. 142[1].

Hab. Mexico, Orizaba, Cordova[1] (*Sumichrast*).

It is quite possible that this species may be identical with *P. collinus*; but, without an examination of a typical specimen, I am unable to decide this.

3. **Polycyrtus collinus.** (Tab. X. fig. 2, metanotum and base of abdomen.)

Niger, flavo-varius; tibiis posticis nigris; abdominis segmentis 2° et 3° nigris, apice maculisque 2 lateralibus, flavis; alis hyalinis, stigmate nigro. ♀.

Long. 17 millim.; terebra 6 millim.

Hab. Guatemala, El Reposo 800 feet (*Champion*).

Antennæ nearly as long as the body; the sixth to the twelfth joints clear white, the basal joint white in the centre beneath. Head whitish-yellow, behind and the vertex (except the orbits) black; face punctured; base and apex of the mandibles, and the extreme apex of the clypeus, black. Prothorax black; prosternum, and a broad line on the edge of the pronotum, yellow. Mesonotum black; two lines at the apex of the middle lobe, the tegulæ, the keels of the scutellum, the apical half of the latter, the postscutellum, and a thin line running from the scutellum and postscutellum to the wings, yellow. Metanotum yellow; the base, a broad line from the latter running down the centre broadly dilated at the transverse keel (the lateral dilatation united to the spiracles, and projecting outwards towards the spines in front), and a line running down from the spiracles (which are in the black line), black. Pleuræ white, the centre of the middle depression of the mesopleura, a small mark in front of it, the mesosternal suture, the metapleural suture, and a somewhat triangular spot over the hind coxæ, black. The upper transverse keel on the metanotum distinct, the metapleura strongly punctured and transversely striated in the

middle; spines longish, stout, obtuse at apex. Abdomen longer than the head and thorax together; first segment longer than the second; petiole shining, impunctate, black beneath and in the centre above to the middle of the postpetiole, where the black becomes dilated; second segment, except the apex, and a large mark on either side not far from the base (the mark curving round towards the base of the segment at the end), black; third segment black, except an indented spot on either side, and the apex broadly, yellow; the apices of the other segments broadly, and the ventral surface, yellow. Ovipositor as long as the thorax, black. Legs yellow, lined above with black, the hind tibiæ broadly; a longish black mark on all the coxæ; posterior tarsi yellow, black at the base; the four anterior tarsi fuscous beneath. Wings hyaline, fuscous at the apex; stigma black; areolet small, longer than broad, slightly angled where the recurrent nervure is received, the apical nervure bullated in the centre.

4. **Polycyrtus confirmatus.** (Tab. X. fig. 3, metanotum and base of abdomen.)

Long. 15 millim.; terebra 3–4 millim.

Hab. Guatemala, Volcan de Atitlan 2500 to 3500 feet (*Champion*).

Almost identical in coloration with the preceding species; but the body is much narrower and more slenderly built; the frontal spine is not so stout, and has an upward curve; the spines on the metathorax are not so stout, and are sharper at the apex; the black transverse band on the metanotum does not reach the spiracular longitudinal line; the second segment of the abdomen is longer, being nearly as long as the first, the lateral yellow marks are not so broad, and are more produced towards the base of the segment; the metapleuræ are scarcely punctured.

5. **Polycyrtus ferox.**

Polycyrtus ferox, Cresson, Proc. Acad. Phil. 1873, p. 143 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

6. **Polycyrtus major.**

Polycyrtus major, Cresson, Proc. Acad. Phil. 1873, p. 143 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

7. **Polycyrtus cruciatus.** (Tab. X. fig. 4, metanotum and base of abdomen.)

Niger; pleuris metathoraceque flavis; pedibus flavo-fulvis; lineis 3 metathoracis maculaque ad apicem abdominis segmenti 1^{i}, nigris; alis subfumatis. ♀.

Long. 15 millim.; terebra fere 3 millim.

Hab. Mexico (*Sallé*).

Head yellowish-white; behind, the vertex in the centre, and the base of the mandibles, black; frontal spine short and obtuse at the apex; face projecting in the centre; clypeal foveæ longish, oblique. Antennæ slender, the yellow ring on the flagellum broad.

Prothorax black, except the prosternum and a line on the pronotum, which are yellow. Mesonotum black; the scutellar keels, the apex of the scutellum, and the sutures, yellow. Pleuræ yellow, except the part surrounding the tubercles under the yellow tegulæ. Metathorax yellow, except the suture between it and the mesothorax; a black line (dilated on either side at the transverse keel, thus forming a cross) going down from this to the apex, and another line going down from each spiracle, black. The metathorax entirely impunctate, the transverse keel straight, the spines short and obtuse. First abdominal segment narrow, impunctate, a black mark (rounded at the base, transverse and broader at the distal end) at the apex; base of the second segment black, the black dilated at the apex laterally, a large black mark occupying the greater part of the segment; this mark is transverse at the apex, the base projecting on either side into a fish-hook-like process, which is nearly as long as the body of the mark; the other segments have a broad black band at the base. Sheath of the ovipositor black, pilose, scarcely one half the length of the abdomen. Legs immaculate honey-yellow; the femora of a darker fulvous colour, the tips of the tarsi black. Wings with a smoky tinge; stigma testaceous, lighter in the centre.

8. **Polycyrtus fulvofemoratus.** (Tab. IX. fig. 22, ♀; and Tab. X. fig. 5, metanotum and base of abdomen.)

Niger, flavo-varius; scutello flavo; pedibus fulvo-flavis; coxis posticis flavis, nigro-lineatis; femoribus posterioribus supra fusco-lineatis. ♀.

Long. 16 millim.; terebra 5 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Antennæ nearly as long as the body, microscopically pilose. Head with the mandibles entirely, and above the antennæ, except the orbits broadly, black; frontal spine short, thick, obtuse, a roundish tubercle at its base; eyes distinctly margined. Prothorax black, except the prosternum and a broad line on the edge, which are yellow; the sides hollowed, transversely striated. Mesonotum black; two large lines on the lateral lobes, the tegulæ and the scutellar keels and the scutellum entirely, ~~black~~ white; pleuræ and the sternal sutures black, the latter distinct, deep, longish; a transverse line at the base of the metanotum (continued down the sides), a broad line down the centre, and one from the spiracles (joined to the central line by a transverse one), black; the transverse line at the base and the one from the spiracles cover the furrows; the transverse carinæ distinct. Spines longish, stout; the sides projecting as a broad tubercle in front of the hind coxæ. First abdominal segment black, except at the apex; second segment with a broad transverse band at the base, the sides projecting at the apex (in front of this is a large black mark with the base indented by a triangular indentation), the apex truncated; third segment with a large black mark at the base; the other segments almost entirely yellow. There is a broad line on all the coxæ, a line on the trochanters and over the hind femora, black; the apices of all the tarsi are blackish.

9. **Polycyrtus montezuma.** (Tab. X. fig. 6, metanotum and base of abdomen.)

Niger, flavo-varius; pedibus apiceque scutelli, flavis; femoribus fulvis; coxis posticis flavis, nigro-lineatis; stigmate fusco. ♂.

Long. 18 millim.

Hab. Mexico (*Sallé*).

Antennæ densely pilose, a broad white ring beyond the middle (joints 8–13). Head yellow, except behind and the vertex in the centre; tips of the mandibles black. Prothorax black, the prosternum and a broad line on the edge of the pronotum, yellow. Mesopleura and sternum entirely yellow, the mesonotum black; the tegulæ, a short line on either side of the apex of the middle lobe, the apex of the scutellum, the postscutellum, and the sutures, yellow. Metathorax yellow, the base broadly black, and the black continued down the centre, becoming gradually narrowed from the base to the apex; a narrow black line runs from the spiracles down the side; the metapleura is black, except the suture and a small mark over the hind coxæ; the metathorax is covered with long fuscous hair, and the spines are obtuse and short. First abdominal segment black above, the sides narrowly (except at the base and at the tubercles, where the yellow is broader), the apex broadly, and the lower side, yellow; second segment black at the base, the black continued along the sides for about one third of the length of the segment and enclosing a small yellow mark and becoming dilated at the apex; in front of this is a large black mark, which occupies the greater part of the segment; it is narrowest at the base, where the sides project irregularly, and not transverse like the apex; the apex of the second and following segments broadly yellow; the apical segment for the greater part yellow. Legs fulvous; the coxæ clear yellow, lined on the outside with black. Wings hyaline, stigma fuscous; areolet a little longer than wide, outer nervure bullated.

Differs from *P. fulvofemoratus* in there being no cross black band joining the central stripe and the spiracles; in the basal part of the middle stripe being much broader than the middle, the basal part forming a triangle in front of the spiracles, while in *P. fulvofemoratus* it is not much broader than the parts of it at the keel, and is also narrowed in the middle. The black at the base of the second abdominal segment is prolonged along the sides, while in *P. fulvofemoratus* it is completely transverse; in the latter species too the base of the black mark is sharply indented, the sides projecting sharply.

10. **Polycyrtus canaliculatus.** (Tab. X. fig. 7, metanotum and base of abdomen.)

Niger, flavo-varius; apice scutelli pedibusque, flavis; lineis 3 metathoracis femoribusque supra, nigris; alis hyalinis, stigmate testaceo. ♂.

Long. 15–16 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Head, pro- and mesothorax coloured as in *P. montezuma*; the mandibles only black at the base; apical half of the scutellum yellow; frontal spine shortish, conical. Metanotum with a broad black mark at the base, which is not joined to the black suture of the metapleura; a broad band runs down the centre from the base, where it is not dilated; a narrower line runs down from the spiracles; there is no transverse line, and the transverse keel is distinct; behind it in the middle is an indistinct, somewhat triangular, area; a suture runs from it down the black central line; pleuræ transversely punctured; spines broad, longish. First abdominal segment black, except at the apex and along the sides; second segment with a black line along the base and continued along the sides for about the basal third of the segment; in front of this is a large black mark, narrow at the base, the apex transverse, the sides not rounded; basal half of the third segment black; the other segments narrowly lined with black. There is a black mark on each coxa, and a somewhat obscure black line over the femora and trochanters (this latter interrupted); the base of the hind tibiæ is black.

The second abdominal segment is marked very much as in *P. montezuma* and *P. blanditus*; the former, however, has the central black mark longer and slightly indented at the base, the apex being transverse, while in *P. canaliculatus* the sides are cut off; the latter has the base not rounded as in *P. canaliculatus*, but sharply truncated, and at the apex the sides project. Neither of the above species has the black line on the metanotum sulcated.

11. **Polycyrtus blanditus.** (Tab. IX. fig. 21.)

Long. 15 millim.

Hab. GUATEMALA, El Reposo 800 feet (*Champion*).

Smooth, shining, impunctate; the sides of the prothorax longitudinally striated. Antennæ longer than the body, the white ring broad and placed near the apex; pilose. Ocelli raised; two carinæ run from them to the frontal spine (which is broad and rather obtuse) becoming more distinct as the spine is reached. A large fovea immediately below the antennæ. Apex of the clypeus and the base of the mandibles black. Sides of the prothorax depressed; in front is a sharp margin, from which, at the top, an oblique keel runs to a large semilunate depression at the apex. Sutures of the mesonotum deep; a short keel in the centre of the middle lobe at the base. The prothorax is black, except the prosternum and a broad mark on the edge above. Mesonotum black; two short yellow lines in the middle; the keels in front of the scutellum, and the apical half of the latter, yellow; the pleuræ below the wings are black, as well as the sutures; the sutures between the meso- and metanotum and the postscutellum are yellow. Metathorax yellow, the base broadly black; a broad black

line down the centre from the black basal part; a thinner line runs from the spiracles down the sides, and there is a small black mark over the hind coxæ; the upper transverse keel is distinct and is curved upwards a little in the middle, from which a short keel runs upwards; the second transverse keel is obsolete; spines longish, stout, slightly curved. Petiole black, except at the sides and beneath; apex of the postpetiole yellow. The second segment yellow, black at the base and a short distance along the sides; in front of this is a large black mark, rounded and narrowed at the base, the apex truncated in the middle, the sides projecting. The other segments are broadly black at the base. There is a black line on all the coxæ and over the femora and trochanters; the anterior tarsi are black at the apex. Areolet longer than broad, dilated at the apex; the outer nervure thin but distinct.

12. **Polycyrtus paululus.**

Polycyrtus paululus, Cresson, Proc. Acad. Phil. 1873, p. 145 (♀)[1].

Hab. MEXICO, Cordova [1] (*Sumichrast*).

13. **Polycyrtus junceus.**

Polycyrtus junceus, Cresson, Proc. Acad. Phil. 1873, p. 145 (♂)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

14. **Polycyrtus chontalensis.** (Tab. X. fig. 8, metanotum and base of abdomen.)

Niger, flavo-varius; scutello apiceque abdominis segmento 2°, flavis; metathorace punctulato; alis hyalinis, stigmate nigro. ♂.

Long. 18–19 millim.

Hab. NICARAGUA, Chontales (*Janson*).

Antennæ stout, as long as the body, covered with close pubescence. Eyes margined; front depressed, the spine short, conical, and obtuse; face punctured, projecting in the centre; mandibles black at the base; above the antennæ the head is black, except round the eyes. Pronotum black, except a broad line above. Mesonotum black, a yellow line along the outer edge of the central lobe; pleural sutures black; scutellum yellow, except at the base; the carinæ in front of it being also yellow, as is also the suture between the meso- and metanotum. Metanotum black at the base, along the transverse keel and down the sides broadly from the spiracles; a broader line down the centre, and a mark over the hind coxæ, black; the basal region slightly, the rest strongly, punctured, the sides transversely striated; the centre, between the two distinct transverse keels, longitudinally striated; from the upper transverse keel two short, slightly diverging keels run halfway towards the base in the centre; tubercles broad, obtuse. Petiole black at the base, a thin line along the sides and a thin central

line running to the postpetiole, which is also black, except at the apex. The second segment is black, broadly yellow at the apex; a thin lateral spot at the base, and a larger one in the centre of the black part. The other segments black, except at the apex; the black on the apical segment smaller and narrower from the centre. Ventral surface yellow, the segments lined with black. The four anterior coxæ have a black line at the base and a larger black spot at the apex; the hind coxæ are broadly lined with black down the centre, which is hollowed and transversely striated and punctured. Areolet longer than broad, the outer nervure bullated.

15. **Polycyrtus acerbus.**

Polycyrtus acerbus, Cresson, Proc. Acad. Phil. 1873, p. 144 (♀)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

16. **Polycyrtus macer.**

Polycyrtus macer, Cresson, Proc. Acad. Phil. 1873, p. 144 (♂ ♀)[1].

Hab. MEXICO, Cordova [1] (*Sumichrast*).

17. **Polycyrtus guatemalensis.** (Tab. X. fig. 9, metanotum and base of abdomen.)

Niger, flavo-varius; apice scutelli flavo, dimidio basali tibiarum posticarum nigris; alis fere fumatis, stigmate nigro. ♂.
Long. 16 millim.

Hab. GUATEMALA, Purula (*Champion*).

Head black above the antennæ, except the orbits; the apex of the clypeus and the base of the mandibles black; spine longish, stout, not tapering much towards the apex; a carina runs from its sides to the eyes, another obliquely upwards and another less strongly defined from its centre upwards. Prothorax black, except the prosternum and a broad mark on the edge. Mesonotum black, except two lines at the base of the middle lobe, which has a short keel in its centre at the base. Scutellar keels and the apex of the scutellum, broadly yellow. Pleural sutures black. Near the base of the metanotum is a transverse, rather wide depression, which is black, the black touching the extreme base in the centre; from this a broad black line runs down the centre and a narrower one runs down the sides from the spiracles; over the hind coxæ is a black mark. The metathorax is not very much shorter than the mesothorax; it has a gradual slope to the apex; in the centre is a longitudinal canal; the sides are transversely striated; the spines are long and curved; the upper transverse keel is distinct, the lower one obsolete; the sides in front of the hind coxæ project as a blunt tubercle. Petiole black, except laterally and beneath; postpetiole yellow at the apex. Second segment with a large black mark, which occupies three fourths of it, and has a small

yellow transverse line in its centre at the base. The other segments are broadly black at the base. All the coxæ bear a black line on the outside; all the femora, trochanters, the four anterior tibiæ and tarsi, and the basal half of the hind tibiæ are black above. Areolet longer than wide, the outer nervure distinct and nearly joined to the recurrent nervure.

Not unlike *P. chontalensis*, but the metanotum is not strongly punctured and the spines are much longer, thinner, and curved.

18. **Polycyrtus nigritibialis.** (Tab. X. fig. 10, metanotum and base of abdomen.)

Niger, flavo-varius; apice scutelli, abdominis segmento 2° apice et basi, flavis; tibiis posticis nigris; alis hyalinis. ♂.

Long. 12 millim.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Antennæ much longer than the body, pilose; third joint considerably longer than the fourth. Head black above the antennæ, except the orbits broadly; frontal spine longish, thick, not tapering much towards the apex; three carinæ, not very distinct, lead to it from above; eyes not distinctly margined. Sides of the prothorax black and longitudinally striated; above black, except a broad yellow line on the edge. Mesonotum black; two lines in the centre, more than the apical half of the scutellum and its keels, yellow. Pleuræ below the wings black. The centre of the metanotum broadly in the middle at the base black, the black continued as a narrow line down the pleuræ, and in the middle as a broad stripe; a narrower line down the sides from the spiracles (joined to the middle stripe by a short transverse line), and a small line over the hind coxæ, black; the metanotum is depressed in the middle behind the postscutellum; upper transverse keel distinct, the lower obsolete; spines long, stout. First abdominal segment black, except at the apex and laterally; second segment with a large black mark, dilated at the apex like the segment itself; the other segments broadly black at the base. A broad line on all the coxæ, a line over the four anterior legs and also over the hind trochanters and femora, and the hind tibiæ entirely, black. Areolet longer than broad, the outer nervure quite distinct.

19. **Polycyrtus mancus.**

Polycyrtus mancus, Cresson, Proc. Acad. Phil. 1873, p. 145 (♂ ♀)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

20. **Polycyrtus fulvipes.** (Tab. X. fig. 11, metanotum and base of abdomen.)

Niger, flavo-varius; thorace punctulato; scutello nigro, apice flavo; pedibus fulvis, anticis flavis; alis hyalinis, apice fumatis. ♂.

Long. 12 millim.

Hab. GUATEMALA, El Tumbador 2500 feet (*Champion*).

Antennæ much longer than the body; pilose, especially on the lower side. Head yellow; behind, the middle of the vertex, and the mandibles, black; closely punctured; below the ocelli striated; frontal spine longish, acute. Thorax strongly punctured, mesopleura striated in the middle, metapleura reticulated; base of the metanotum reticulated, striated. Scutellum with a few scattered punctures. Prothorax in front, a longish line on the edge of the pronotum, the tegulæ, the tubercle beneath them, a large oblique mark on the lower side of the mesopleura, the sternum, the greater part of the metapleura, two longish lines on the disc of the mesonotum, the apex of the scutellum, the postscutellum, and two large marks on the metanotum covering the tubercles, yellow; tubercles shortish, thick. First abdominal segment yellow, a large black mark towards the apex, which is itself yellow; the other segments black, yellow at the apex. The four anterior coxæ are yellow, the hind pair fulvous like the rest of the legs and with a yellow mark at the base. Areolet minute, narrow, closed at the apex.

21. **Polycyrtus reliquus.**

Polycyrtus reliquus, Cresson, Proc. Acad. Phil. 1873, p. 146 (♂)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

This species agrees with *P. fulvipes* in having the thorax punctured, but the punctuation is stronger; there is only one yellow mark on the mesonotum; the scutellum is, for the greater part, yellow; the spines on the metathorax are nearly obsolete; the black central stripe on the metanotum is separated from the basal black part; the hind femora are yellow and lined with black, and the femora are also lined with black.

22. **Polycyrtus copiosus.**

Polycyrtus copiosus, Cresson, Proc. Acad. Phil. 1873, p. 146 (♂ ♀)[1].

Hab. MEXICO, Orizaba, Cordova [1] (*Sumichrast*).

23. **Polycyrtus accuratus.**

Polycyrtus accuratus, Cresson, Proc. Acad. Phil. 1873, p. 147 (♀)[1].

Hab. MEXICO, Mirador [1] (*Dr. Sartorius*).

24. **Polycyrtus furvus.**

Polycyrtus furvus, Cresson, Proc. Acad. Phil. 1873, p. 147 (♂)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

B. *Body for the greater part red.* (Species 25–34.)

25. **Polycyrtus univittatus.**

Polycyrtus univittatus, Cresson, Proc. Acad. Phil. 1873, p. 148 (♂ ♀)[1].

Hab. Mexico, Orizaba, Cordova [1] (*Sumichrast*).

26. **Polycyrtus pallidus.**

Polycyrtus pallidus, Cresson, Proc. Acad. Phil. 1873, p. 148 (♂)[1].

Hab. Mexico, Cordova [1] (*Sumichrast*).

27. **Polycyrtus pallidibalteatus.**

Pallide rufus ; antennis, vertice, prothorace, tegulis, mesothorace, metathoracis basi abdominisque dorso (apicibus segmentorum exceptis), nigris ; annulo flagello antennarum, facie, ore, orbitis, linea pronoti, apice scutelli postscutelloque, albis ; alis hyalinis, nervis nigris. ♀.
Long. 21 millim.

Hab. Mexico, Orizaba (*Bilimek*).

Antennæ, if anything, longer than the body, covered with a microscopic pile. Head impunctate, shining ; pale white, except the vertex in the centre and behind ; frontal spine stout, about one half the length of the scape. Lobes of the mesonotum well developed (especially the middle one), the lateral one with a very distinct margin along the edge. The two transverse keels on the metanotum are distinct, the upper one but slightly bent upwards in the middle ; the lower one is bent sharply upwards, thus ⌐ ; spines short, blunt (double as long as wide). The metathorax bears some scattered pale longish hairs ; the black at the base of the metanotum is divided in the middle and it runs there and at the sides into the red. Petiole black, reddish at the base, sides, and beneath ; the apex of the postpetiole broadly white. The apices of the segments are broadly yellowish-white ; the tarsi whitish or yellowish ; the anterior legs yellowish in front, and the tips of the tarsi are black.

I am not quite sure but this species may be identical with the Brazilian *P. histrio*, Spinola (Ann. Soc. Ent. Fr. ix. p. 155, t. 7. fig. 3 ; Brullé, Hymén. iv. p. 214 ; Taschenberg, Zeits. f. d. gesammt. Naturwiss. xlviii. p. 78), with which it agrees in coloration ; but *P. histrio*, so far as I can make out, has only one keel on the metanotum, the lower one so conspicuous in the present form being absent. Brullé furthermore describes the spines as "longues et un peu arquées" in the female, terms which scarcely fit *P. pallidibalteatus*. From the next species it may easily be known by the much darker dorsum of the abdomen (including the petiole), and by the black base of the metanotum ; *P. erythrosternus*, moreover, having the spines much longer and sharper with no keel between them, the face being black.

28. **Polycyrtus erythrosternus.** (Tab. IX. fig. 20.)

Rufus, nitidus; capite, pronoto, mesonoto antennisque, nigris; annulo antennarum, orbitis, linea pronoti, tegulis, lineis 2 mesonoti, scutelli apiceque, flavis; abdominis dorso fusco variegato; alis hyalinis, stigmate testaceo.

Long. 14 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ longer than the body, a little thickened and compressed towards the apex; the annulus broad. Front projecting, the projecting part narrowed towards the apex and depressed below the antennæ; the spine conical, semi-obtuse at the apex; a tubercle at its base. Orbits from the middle to the back broadly white; a whitish mark in the centre of the clypeus at the apex; sides of the mandibles yellowish; palpi reddish yellow. The mesosternum is reddish yellow, black in front; the yellow line on the edge of the pronotum is broad; the carinæ in front of the scutellum yellow. Scutellum black on the top, reddish at the sides, and yellow at the apex. Transverse keel on the metathorax acute, a little curved upwards in the middle; the base of the metanotum somewhat depressed in the centre. Tubercles large, curved, semi-acute at the apex. Metapleuræ with scattered punctures. The ground-colour of the abdomen is obscure red; the sides incline to yellow, and the back, from the second segment, is fuscous, the apices of the segments being much lighter, almost reddish, in tint. The scutellum and metathorax are sparsely covered with long pallid red hair; the apex more densely with fuscous hair. Sheath of the ovipositor black, microscopically pilose. The hind tarsi are yellow, black at the apex; the four anterior ones black, except the basal joint, which is reddish.

Allied to *P. rufiventris*, Brullé, from Brazil; but may be known from it by the fuscous colour of the abdomen, the absence of white marks on the mesothorax (except the scutellar keels), and the reddish post-scutellum, while the metathorax is differently formed.

29. **Polycyrtus atriceps.**

Polycyrtus atriceps, Cresson, Proc. Acad. Phil. 1873, p. 148 (♀)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

30. **Polycyrtus tinctipennis.** (Tab. IX. fig. 19.)

Rufus; capite (ore excepto) antennisque nigris, flagello antennarum annulo albo; tarsis posticis pallide flavis; alis flavo-hyalinis, stigmate rufo-testaceo. ♀ et ♂.

Long. 13–14 millim.; terebra $4\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui, 2000 to 6000 feet (*Champion*).

Smooth, shining, impunctate; thorace sparsely covered with long reddish hairs; apex of the abdomen densely covered with longer hairs, also red. Antennæ a little longer than the body, thickened and compressed towards the apex, covered with a microscopic

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pile; third joint much longer than the fourth. Clypeus rounded at the apex, projecting, reddish, as also are the palpi; mandibles reddish yellow, the apices piceous; frontal spine $2\frac{1}{2}$ times longer than broad, obtuse at the apex. Transverse keel on the metathorax large, sharp, turned a little upwards in the middle; above it is a large, somewhat triangular depression (broadest at the base) which is a little raised in the centre. Tubercles large, a little curved, indistinctly keeled on the sides above, and hollowed at the base, compressed laterally towards the apex. Between the tubercles are three, not very distinct, longitudinal carinæ. The sides of the metathorax are obscurely punctured. Petiole curved, a little longer than the second segment. Areolet longer than broad, the outer nervure distinct.

The male has the antennæ longer than in the female; the thorax is not so shining, being almost aciculate, and the clypeus is yellowish.

This species is closely related to *P. atriceps*, which differs from it in having the hind tibiæ yellow, the wings hyaline, the basal margin of the third and following abdominal segments blackish. The tubercles on *P. atriceps* are described as "robust and obtuse." *P. nigriceps*, Brullé (from Brazil), also agrees with the present species in coloration, except that the keels in front of the scutellum are yellow, and the legs pale yellow, while the metathoracic tubercles are short and conical, the upper region, too, having two tubercles; *P. curvispina* is readily distinguished from it by the large areolet and clear hyaline wings.

31. **Polycyrtus chiriquensis.**

Ferrugineus; antennis, vertice, pronoto mesonotoque (scutello excepto), nigris; facie, orbitis, linea pronoti, lineis 2 mesonoti annuloque antennarum, flavis; alis hyalinis, stigmate nigro-fusco. ♀.
Long. 14 millim.; terebra 5 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 5000 feet (*Champion*).

Smooth, shining, impunctate. Antennæ stout, a little longer than the body, closely pilose. The head is yellow, except behind, a small conical mark below the antennæ, and the vertex in the centre; clypeus scarcely transverse, the sides rounded, the foveæ deep; tips of the mandibles black; the frontal spine moderately long and acute. The lower part of the prothorax is ferruginous; the edges broadly lined with yellow. On the mesonotum the middle lobe is bounded by yellow at the apex. Scutellar carinæ yellow. The metanotum is slightly depressed in the middle at the base; the transverse keel is not very well developed, and is a little curved up in the middle. Tubercles short (not being much longer than broad), and obtuse at the apex. Abdomen shining, impunctate; ovipositor scarcely half its length, the sheath black, pilose. Legs longish, the tarsi inclining to yellowish. Areolet narrow, nearly twice as long as wide, closed at the apex, the outer nervure nearly interstitial.

A larger species than *P. erythrosternus*, and easily known from it by the yellow face, entirely red scutellum, and much shorter and more obtuse metathoracic tubercles.

32. **Polycyrtus curviventris.** (Tab. X. fig. 28, ♀.)

Rufus; antennis, capite, femoribus posticis, abdominis dorsis pro parte terebraque, nigris; annulo antennarum, clypeo, labro mandibulisque, albis; alis hyalinis, fere fumatis, nervis nigris. ♀.

Long. 21–22 millim.; terebra 11 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Smooth, shining, impunctate, sparsely pilose. Lobes of the mesonotum well developed. Frontal spine conical, short. Transverse keel on the metanotum slightly curved backwards in the middle. Tubercles longish, slightly curved, of nearly equal thickness throughout, rounded at the apex. Petiole not defined from the postpetiole. Apex of the abdomen clavate, oblique. Petiole entirely reddish; the other segments black above, the second and third broadly red at the apex. Areolet longer than broad, dilated at the apex, closed, the recurrent nervure interstitial.

The largest of the Central American species.

33. **Polycyrtus xanthothorax.** (Tab. X. fig. 12, ♀.)

? *Mesostenus xanthothorax*, Brullé, Hist. Nat. Ins. Hymén. iv. p. 213 (♂); Taschenberg, Zeits. f. d. gesammten Naturwiss. xlviii. p. 77 (♀)[1].

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).—BRAZIL [1].

As I am not quite certain that the Bugaba example (a female) is identical with the species described by Brullé and Taschenberg, I give a full description of it:—

Antennæ scarcely so long as the body, black, a broad white ring beyond the middle; moderately stout, covered with a microscopic pile. Head black, the labrum, clypeus, and mandibles white; frontal spine shortish, thick, conical. Thorax red; pronotum in front, and the mesonotum (but not the scutellum), black. Lobes of the mesonotum well developed. Metathorax longish, with a nearly gradual slope to the apex; the centre very slightly hollowed, and there is a shallow furrow between the tubercles, which are short, being not more than twice as long as wide. The upper transverse keel straight; the other obsolete. Abdomen black, the upper side of the postpetiole black; the second segment broadly white at the apex, the other segments narrowly white, the ventral surface obscure white. The apex of the abdomen decidedly clavate, compressed laterally, the extreme apex oblique; the ovipositor issuing from the lower side and projecting upwards, its sheath black and hairy, about half the length of the abdomen. Petiole longish, slender; second segment nearly as long as the petiole, and longer than the following segments together. Legs reddish; posterior femora, and the greater part of the hinder trochanters, black; posterior tibiæ and tarsi whitish yellow, the apex of the latter black. Wings scarcely so long as the thorax and abdomen together, hyaline; areolet small, a very little longer than broad, the apical nervure bullated, the recurrent nervure recurved in the middle.

Brullé describes the tubercles in his species as "longues et arquées," and Taschenberg

says there is "a triangular central white spot on the abdominal segments"; but the description of the abdominal coloration given by Brullé agrees with our specimen.

34. **Polycyrtus curvispina.**

Ferrugineus, nitidus; antennis capiteque nigris, ore albo; antennis annulo albo, tarsis posticis flavis; alis hyalinis, stigmate testaceo.
Long. 13 millim.

Hab. Costa Rica, Cache (*Rogers*).

Smooth, shining, impunctate. Antennæ much longer than the body, pilose; third joint longer than the fourth. Front depressed between the eyes, the spine stout, longish, conical; eyes distinctly margined; face covered with long white hair. Thorax covered with long reddish hair; mesonotal sutures deep; a triangular depression at the base of the metanotum in the middle, a transverse keel in the centre; tubercles long and curved. Abdomen slender, covered (especially at the sides) with long fuscous hair. Areolet large, one half longer than broad, the outer nervure bullated.

In this species the areolet is much larger than in the other species of *Polycyrtus* or *Mesostenus*, but in other respects it agrees with *Polycyrtus*. If, however, it had not the frontal spine I should almost have placed it in *Cryptus*. *P. atriceps* agrees with it in coloration; but has the metathoracic tubercles "robust and obtuse," the areolet closed, and is only four lines in length. *P. nigriceps*, Brullé, also agrees with it in coloration; but differs, *inter alia*, in having the tubercles short and conical.

POLYÆNUS.

Polyænus, Cresson, Proc. Acad. Phil. 1873, p. 149.

This section differs from *Polycyrtus* in the front having two small spines, often united at the base, instead of one only. In some species of *Mesostenus* there are slight indications of these spines, while *Polyænus* agrees with the latter in the lobes of the mesonotum not being well developed as in *Polycyrtus*. The known species are comparatively few in number.

1. **Polyænus ectypus.**

Polyænus ectypus, Cresson, Proc. Acad. Phil. 1873, p. 149 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

2. **Polyænus ablatus.**

Polyænus ablatus, Cresson, Proc. Acad. Phil. 1873, p. 149 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

3. **Polyænus championi.** (Tab. IX. fig. 23.)

Niger, flavo varius; sterno, pleuris proparte, apice scutelli pedibusque, flavis, femoribus supra nigris; alis lenissime fumatis. ♀.

Long. 16 millim.; terebra 6 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 6000 feet (*Champion*).

Antennæ stout, longer than the body; a yellow line on the scape beneath, the ring on the flagellum narrow. Head punctured; behind the centre of the vertex, and the mandibles, black. Thorax punctured; the pleuræ obliquely striated, the metanotum below the first transverse keel longitudinally, the rest transversely, striated. Base of the metanotum smooth, impunctate, the part next to the transverse keel punctured. The spiracles placed in an oval area, the part surrounding it finely and closely reticulated. The prothorax in front, a broad line on its edge, the tegulæ, the tubercle beneath them, a large oblique mark on the lower part of the mesopleuræ, the mesosternum, the greater part of the metapleura, two lines on the disc of the mesonotum, the carinæ in front of the scutellum, a large triangular mark on the apex of the scutellum, the postscutellum, and two large marks on the metanotum covering the tubercles, yellow. First segment of the abdomen yellow, a large black mark covering the apex of the petiole and the base of the postpetiole; the second segment with a yellow spot covering the gastrocœli, its apex yellow; the other segments black, broadly yellow at the apex. Legs yellow, the femora lined with black above; a minute black spot on the middle coxæ, a broad black line on the hind pair; hind trochanters black above. Apices of the tarsi black. Areolet distinct, longer than broad, closed at the apex.

4. **Polyænus nitidiusculus.**

Niger, flavo varius, nitidus; pedibus flavis, supra nigro lineatis, tarsis posticis læte flavis.

Long. 15 millim.; terebra 6 millim. ♀.

Hab. GUATEMALA, Las Mercedes 3000 feet (*Champion*).

Head yellow, the middle of the vertex behind, and the apex of the mandibles, black; face transversely striated. Thorax smooth, shining, impunctate, black; the prothorax in front, a broad line on its edge, the tegulæ, the tubercles beneath them, the greater part of the meso- and metapleuræ, a large mark beneath the hind wings, the edges of the middle lobe of the mesonotum, a line joined to it in front of the yellow edge of the pronotum, the carinæ in front of the scutellum, the scutellum (except a large black mark at the base), the postscutellum, a mark on either side of the metanotum, a large mark covering the tubercles and extended above them, yellow. Metathorax shining, impunctate; tubercles large, slightly curved. First abdominal segment broad; the petiole not clearly separated from the postpetiole, black; the base largely and a broad band on the apex, yellow. The other segments black, yellow at the apex and beneath. Legs yellow, the four anterior trochanters, the femora, tibiæ, and tarsi, black above; a small black mark on the apex of the four anterior coxæ; two large marks, joined at the

apex, on the top of the hind coxæ; hind trochanters and femora broadly above, the hind tibiæ almost entirely, and the base and apex of the tarsi, black. The antennæ are broken off beyond the base of the flagellum; the scape is yellow in the centre beneath. Areolet longer than broad, narrow, open at the apex.

5. **Polyænus orizabensis.**

Niger; facie, orbitis, tegulis, linea pronoti, maculis pleuratis, maculis 2 mesonoti, apice scutelli, postscutello, maculis 2 metanoti abdominisque segmentis apice, flavis; pedibus flavis, coxis, trochanteribus, femoribus supra apiceque tibiarum posticarum, nigris; alis hyalinis, stigmate nigro. ♀.

Long. 17 millim.; terebra 5 millim.

Hab. MEXICO, Orizaba (*Bilimek*).

Antennæ black, covered with microscopic down (broken off beyond the tenth joint). Head yellow, the apex of the mandibles, the vertex above the antennæ in the centre, and the occiput, black. Face, especially the sides, transversely striated. Frontal spines small, united at the base. Thorax strongly punctured; the pleuræ (especially the metapleuræ) obliquely striated, except the tubercles below the tegulæ, and a shining impunctate projecting point in the centre of the mesopleuræ. Base of the metanotum irregularly reticulated, the apex transversely striated, and with a rather abrupt slope. Scutellum opaque, aciculate. The lobes of the pronotum project, and are broadly yellow; the mesonotal sutures are not deep, the middle lobe not being much elevated above the lateral ones, and they are lined for three fourths of their extent by a narrow yellow line. Prosternum broadly, a broad oblique mark on the mesopleuræ, the tubercles under the tegulæ, a somewhat triangular mark immediately under the hind wings, a large oblique mark on the metapleuræ, two longish marks on the apex of the metanotum covering the tubercles (which are longish, stout, and slightly curved), the keels in front of the scutellum, the apex of the latter, and the sutures, yellow. The two transverse keels on the metanotum are distinct, and there is a square area, raised in the centre, at the base in the middle. Petiole dilated laterally at the extreme base and becoming widened towards the apex, black; the under side and apex yellow; the other segments black, yellow at the sides, beneath, and at the apex above. Legs yellow, all the femora lined above with black; two black lines (united at the apex) on the sides of the hind coxæ; the basal joint of the hind trochanters, the extreme apex of the apical joint, and the base and apex of the hind ibiæ (the apex not all round), black. Areolet longer than broad, narrow, the outer and inner nervures bullated.

6. **Polyænus basimacula.** (Tab. IX. figg. 24 ♀, 25 ♂.)

Niger, albo varius; abdomine rufo, basi nigro; pedibus fulvo-rufis, femoribus nigro lineatis, coxis anterioribus flavis.

Long. 14 millim.; terebra fere 4 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ stout, longer than the body, the yellow ring on the flagellum broad. Head punctured, except behind, the middle of the vertex, and the mandibles. Thorax strongly punctured; the pleuræ longitudinally, the apex of the metanotum transversely, striated; base of the metanotum impunctate, behind the transverse keel punctured, before it, in the centre, reticulated. Metathoracic tubercles large, stout, a little curved. Thorax black; the collar in front, a line on the edge, the tegulæ, a large mark on the mesopleura, the tubercles, a mark under the hind wings, the greater part of the metapleura, a mark at the apex of the middle lobe, the carinæ in front of the scutellum, the scutellum, two large marks on the metanotum (covering the tubercles), white. Abdomen rufous, the greater part of the petiole black, the apex of the postpetiole yellow. Legs rufous, the anterior pair yellowish or fulvous in front; the coxæ yellow, marked with black behind, the hind pair rufous, sometimes tinged with yellow at the base; femora for the greater part black above, but especially towards the apex. Areolet minute, closed at the apex.

The male has the breast white, and the second abdominal segment more or less black, otherwise coloured as in the female.

7. **Polyænus volcanicus.**

Niger, flavo varius; apice scutelli coxisque anterioribus, flavis, abdomine rufo; pedibus fulvis, anticis flavis; alis hyalinis.

Long. 14 millim.; terebra 6 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Similar in coloration to the preceding species, but differing in having the basal half of the scutellum black, the base of the metanotum more strongly punctured, and the ovipositor longer. The femora are lined above with black.

CHRISTOLIA.

Christolia, Brullé, Hist. Nat. Ins. Hymén. iv. p. 163. 246

This genus does not seem to me to be clearly defined from *Mesostenus*, and still less from *Cryptanura*. The species (as are also those of *Cryptanura*) are neotropical, and are much less numerously represented than the typical forms of *Mesostenus*.

1. **Christolia nubecula.**

Christolia nubecula, Cresson, Proc. Acad. Phil. 1873, p. 163 (♂)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

2. **Christolia panamensis.** (Tab. X. fig. 27.)

Niger; annulo antennarum, palpis, abdominis apice tarsorumque posticorum apice, albis; alis hyalinis, stigmate nigro.

♂ facie alba, sterno coxisque sordide flavis.

Long. 20–22 millim.

Hab. Panama, Bugaba, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Antennæ as long as the body, stout, thicker towards the apex, the third joint longer than the fourth. Head a little wider than the mesothorax, retreating behind the eyes; front a little projecting; clypeus transverse at the apex, the face transversely rugose, opaque. Mesonotum minutely and rather indistinctly punctured, the furrows obsolete. Scutellum smooth, shining, impunctate; the sides at the base above carinate, laterally hollowed, strongly striated. Metathorax densely covered with silvery white hair, the base laterally opaque, obscurely aciculate, the middle and the rest of it transversely striated, the apex hollowed in the middle; the upper transverse keel curves round to the extreme base, the second interrupted in the middle; tubercles blunt, short. Petiole and postpetiole smooth, shining, impunctate; the rest of the abdomen scarcely so shining, the sides covered with short pale down. The anterior legs (including the coxæ) are obscure testaceous in front, the middle tibiæ and tarsi less so.

The clypeus may be entirely black or yellow; the apex of the abdomen may be only white in the middle, or there may be two or three transverse marks on the intermediate segments. Some specimens (especially those with the mouth black) have the pleuræ more densely pilose than others.

The male has the orbits, the face below the antennæ, the clypeus, and the mandibles (except at the tips), yellow; all the coxæ beneath, and the four anterior legs on the under side, obscure testaceous.

3. **Christolia calcarata.**

Christolia calcarata, Cresson, Proc. Acad. Phil. 1873, p. 164 (♂)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

4. **Christolia menticula.** (Tab. X. fig. 29.)

Niger; antennarum annulo, tegulis, scutello, postscutello, maculis abdominis apice tarsorumque posticorum apice, albis; pedibus rufis, tibiis tarsisque posticis nigris; alis hyalinis, stigmate nigro.

♂ facie flava.

Long. 18–20 millim.; terebra 7 millim.

Hab. Mexico, Orizaba (*Bilimek*); Guatemala, San Gerónimo (*Champion*); Panama, Volcan de Chiriqui (*Champion*).

Antennæ as long as the body, stout, thickened towards the apex; the third joint a little longer than the fourth. Head scarcely so broad as the mesothorax, opaque, semi-rugose; front projecting in the middle, the clypeus not projecting so much, surrounded at the base by a broad and deep furrow, shining, covered with distinctly separated punctures; the apex almost transverse; labrum, the base of the mandibles, and the palpi, yellowish. Mesonotum opaque, finely and closely punctured, the furrows clearly defined; scutellum shining, impunctate, the base black, and carinated at the sides, laterally hollowed and striated. Mesothorax densely covered with white hair; the base aciculate, the rest transversely striated; the upper transverse keel curves round to the base of the metanotum, the narrower curved part being transversely striated;

the lower one is interrupted in the middle; tubercles short, blunt. Petiole longish, curved, smooth, shining; an indistinct tubercle on either side of the postpetiole at the base; the remaining segments smooth, covered with microscopic down. Areolet quadrangular, the anterior nervure oblique; there is no angle on the lower side.

Apparently a variable species. The Mexican specimens have only the hind knees, tibiæ, and metatarsus black, and they have the petiole red. The Guatemalan examples have the hind knees broadly, the middle knees slightly, the middle tibiæ and the tarsi entirely, black, and the fore femora, tibiæ, and tarsi more or less black behind, the hind legs being as in the Mexican form; the petiole has only the extreme base red. In the Guatemalan specimens there is a broad white or yellowish mark at the apex of the postpetiole; a small round mark at the apex of the second and third segments; a small triangular mark on the fourth, and a large triangular one on the fifth, sixth, and seventh, the segments at their junctions being obscure reddish. The Mexican specimens want the marks on the petiole and on the second and third segments.

5. **Christolia zapotecus.**

Christolia zapotecus, Cresson, Proc. Acad. Phil. 1873, p. 165 (♂ ♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

6. **Christolia mirabilis.**

Christolia mirabilis, Cresson, Proc. Acad. Phil. 1873, p. 165 (♂ ♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

7. **Christolia mirandus.**

Christolia mirandus, Cresson, Proc. Acad. Phil. 1873, p. 165 (♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

8. **Christolia graciliventris.**

Niger; annulo antennarum, facie, ore, orbitis, scutello, tegulis, linea pronoti, abdominis segmentis apice tarsisque posticis, albis; sterno, pleuris, metanoto (basi excepta) pedibusque, fulvis; tibiis posticis supra nigris; alis hyalinis, nervis nigris. ♀.

Long. 19 millim.; terebra 8 millim.

Hab. Mexico, Valladolid in Yucatan (*Gaumer*).

Face punctured, the vertex aciculate in the centre; tips of the mandibles black. Mesonotum closely punctured, covered with close fuscous pubescence; pleuræ more closely punctured (except in the centre), covered with a greyish-white pubescence. Metanotum at the base shining and impunctate, in front of the transverse keel aciculate, the rest transversely striated. Metathoracic tubercles scarcely indicated. Scutellum much longer than broad, narrowed towards the apex; the mesonotum on either side of it obliquely striated. Petiole longish, clearly defined from the postpetiole, which is

tuberculated at the base laterally, white, the apex of the postpetiole also white, as wel as the ventral surface. Lobes of the pronotum prominent; there is a white mark on either side of the mesonotum at the tegulæ. On the sternum and on the front of the mesopleura the reddish-fulvous colour merges into yellow. Areolet nearly square, the nervures bullated in front. Coxæ punctured, the four anterior ones yellow in front; the hinder femora at the extreme base and apex, the apices of the tarsi, and the extreme base also of the hind ones, black.

9. **Christolia tarsoleucus.**

Niger; scutello, abdominis segmentis apice tarsisque posticis apice, facie, ore, annulo antennarum, linea pronoti, pleuris, metanoto (basi excepta) pedibusque, fulvis; alis hyalinis, apice fumatis, nervis nigris. ♂.
Long. 15 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ as long as the body, the fulvous ring broad. Face closely punctured; clypeus projecting at the apex; vertex wrinkled. Mesonotum punctured, irregularly striated; lobes of the pronotum projecting; pleuræ irregularly striated and punctured. Sutures of the mesonotum deep. Scutellum much broader than long, strongly punctured. The prosternum is fulvous behind, and the line on the pronotum is moderately broad, and does not reach the tegulæ; the middle lobe of the mesonotum is edged with fulvous at the apex, and the pleural tubercles are white. Metanotum black to the tubercles (which are not clearly defined); the upper transverse keel straight, in front of it the surface is irregularly wrinkled, shining, and marked with two roundish white marks, in front of it coarsely and irregularly reticulated, the apex transversely striated; the lower transverse keel not defined. Petiole longish, narrow, not separated clearly from the postpetiole, the base fulvous, the apex white. Hind coxæ punctured at the base and apex; anterior coxæ yellow in front; hind spurs, the base of the hind and the apices of all the tibiæ, black. Wings short.

Obs. It is possible that the ring on the antennæ, the face, and the edge of the pronotum are really white, the fulvous tint being, perhaps, owing to discoloration.

10. **Christolia pulchripes.**

Thorace coxisque posticis rufis; antennis, capite, abdomine, femoribus posterioribus, anticis supra, tarsis intermediis, apice tibiarum intermediarum, tibiisque posticis (basi excepta), nigris; facie, ore, orbitis, annulo antennarum, pedibus anticis, tibiis posterioribus basi tarsisque posticis, albis; alis hyalinis, nervis nigris. ♂.
Long. 14 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Smooth, shining, impunctate; pleuræ striated, covered with whitish pubescence. Antennæ filiform, longer than the body. Sutures of the mesonotum deep, narrow. Prothorax for the greater part white in front; a line on the pronotum, the pleural

tubercles, and the pleural sutures, white. Metanotum in front of the transverse keel (which curves up in the middle) transversely striated, covered with silvery pubescence, behind it shining, impunctate; tubercles absent. Petiole long, narrow, the extreme base reddish, the apex white, shining, impunctate. Apex of the third and the apical segments white, opaque, very finely and closely punctured. Four posterior spurs black; middle tibiæ black only behind; hind tibiæ entirely black, except a broad white ring at the base; tips of the tarsi black. Areolet a little longer than broad, closed, angled on lower side.

CRYPTANURA.

Cryptanura, Brullé, Hist. Nat. Ins. Hymén. iv. p. 242.

1. **Cryptanura sumichrasti.**

Cryptanura sumichrasti, Cresson, Proc. Acad. Phil. 1873, p. 166 (♂ ♀)[1].

Hab. Mexico, Orizaba, Cordova [1] (*Sumichrast*).

2. **Cryptanura delecta.**

Cryptanura delecta, Cresson, Proc. Acad. Phil. 1873, p. 166 (♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

3. **Cryptanura acolhua.**

Cryptanura acolhua, Cresson, Proc. Acad. Phil. 1873, p. 166 (♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

4. **Cryptanura incauta.** (Tab. X. fig. 30.)

Rufa; capite, antennis, abdominis apice, tibiis tarsisque posticis, nigris; annulo antennarum facieque pallide flavis. ♀.

Long. 18 millim.; terebra fere 4 millim.

Hab. Panama, Bugaba 800 to 1500 feet (*Champion*).

Antennæ as long as the body, stout, compressed at the apex; the basal joints a little thickened at their apices; the third joint longer than the fourth, the basal joint of the scape reddish beneath. Head wider than the mesothorax; the face flat, transversely striated; clypeus projecting, the apex transverse; vertex raised in the centre, a furrow on either side of the ocelli; tips of the mandibles blackish. Thorax finely punctured, opaque; furrows obsolete. Scutellum gibbous, broader than long. Metanotum transversely rugose; two broadly curved carinæ at the base, the first quite close to the base, the second at the edge of the oblique slope; tubercles minute. Petiole narrow, smooth and shining; postpetiole semiopaque, obsoletely aciculate, a large tubercle on either side at the base. Abdomen obsoletely aciculate, black from the third segment, the edges of the apical segment obscure red, and covered with pale pubescence. Legs longish; hind spurs reddish; the tarsi (especially on the under side) with reddish bristle-like

hairs; coxæ punctured. Wings with a smoky tinge, especially at the base. Areolet quadrangular, scarcely angled in the middle where the recurrent nervure is received, moderate in size.

5. **Cryptanura laticarinata.**

Hab. Panama, Bugaba (*Champion*).

Identical in coloration with the above, but only 13 millim. in length. The face longer, and broadly keeled in the centre; the postpetiole not keeled at the side, and without tubercles at the base; the areolet larger. The sculpture and the length of the ovipositor as in *C. incauta*.

6. **Cryptanura pedicata.**

Lutea; capite, antennis (annulo excepto), dimidio apicali tibiarum posticarum abdominisque apice, nigris; alis hyalinis, stigmate nigro. ♂.

Long. 10 millim.

Hab. Mexico (*Sallé*).

Antennæ longer than the body, shortly pilose, the joints closely united, the large white ring placed beyond the middle, the base of the flagellum inclining to fuscous. Head, if anything, broader than the mesothorax; sparsely covered with white pile, the front obsoletely carinate; tips of the mandibles piceous; palpi pale testaceous. Thorax aciculate, slightly shining, the furrows on the mesonotum obsolete, the latter gibbous. Scutellum not raised above the mesoscutum, but the latter slopes away from it at the sides. Metathorax longish, narrowed behind, the top sloping gradually from the base to the apex, the sides covered with white hair; there is a longitudinal keel on either side of the metanotum, but no transverse ones. Abdomen aciculate, the basal segments narrow, longish, the apical segment compressed laterally. Legs longish; hind spurs fuscous; base of the metatarsus blackish, the rest of the hind tarsi yellowish, except the apex, which is black in all the tarsi. Areolet quadrangular, obtusely angled on the lower side.

7. **Cryptanura (?) pachymenæ.**

Cryptanura (?) *pachymenæ*, Cresson, Proc. Acad. Phil. 1873, p. 168[1].

Hab. Mexico, Orizaba, Cordova, Mirador[1] (*Sumichrast*).

Bred from a species of *Pachymenes* (Cresson, *loc. cit.*).

HEMITELES.

Hemiteles, Gravenhorst, Ichn. Europ. ii. p. 781.

This genus is a very large one, and especially (so far at least as our present knowledge goes) numerous in the temperate regions of both hemispheres.

A. *Abdomen black, banded with white.* (Species 1 to 8.)

1. *Thorax black, marked with white.* (Species 1 to 4.)

1. **Hemiteles lascivus.**

Hemiteles lascivus, Cresson, Proc. Acad. Phil. 1873, p. 170 (♀)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

2. **Hemiteles patruelis.**

Hemiteles patruelis, Cresson, Proc. Acad. Phil. 1873, p. 170 (♀)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

3. **Hemiteles exilis.**

Hemiteles exilis, Cresson, Proc. Acad. Phil. 1873, p. 171 (♂)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

4. **Hemiteles rarus.**

Hemiteles rarus, Cresson, Proc. Acad. Phil. 1873, p. 171 (♂)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

2. *Thorax ferruginous, mesothorax black above.* (Species 5.)

5. **Hemiteles irritatus.**

Hemiteles irritatus, Cresson, Proc. Acad. Phil. 1873, p. 171 (♂)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

3. *Thorax entirely ferruginous.* (Species 6 to 8.)

a. *Wings hyaline, without bands.* (Species 6.)

6. **Hemiteles ingenuus.**

Hemiteles ingenuus, Cresson, Proc. Acad. Phil. 1873, p. 172 (♀)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

b. *Wings hyaline, with two fuscous bands.* (Species 7 and 8.)

7. **Hemiteles adjicialis.**

Hemiteles adjicialis, Cresson, Proc. Acad. Phil. 1873, p. 172 (♀)[1].

Hab. MEXICO, Orizaba [1] (*Sumichrast*).

This species differs from the next in having no black on the head, the thorax marked with white, and the hind tibiæ black.

8. **Hemiteles rufithorax.**

Rufus; capite abdomineque nigris, albo marginatis; pedibus sordide rufis, anticis basique tibiarum posticarum albis; alis hyalinis, medio apiceque fumatis; stigmate nigro, subtus pallido. ♀.
Long. 6·5 millim.; terebra 1 millim.

Hab. Panama, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ as long as the body, a broad white ring in the centre; scape obscure white on the lower side. Head shining, impunctate, black, the orbits broadly white. Thorax closely punctured; scutellum aciculate and bearing a few scattered punctures. Metathorax more strongly punctured, its transverse keels obsolete; tubercles stout, longer than broad. The thorax in front, the tegulæ, and the metathoracic tubercles clear white. Abdomen aciculate; the first segment white, with a large black mark in front of the postpetiole; second and third segments black, broadly white at the apex; fourth segment entirely black, the rest white. Legs obscure red, the anterior ones pale; hind coxæ blackish, their apices white; hind trochanters marked with black; hind tibiæ darker than the others; tips of the tarsi black. Areolet completely open at the apex; the cloud in the middle is in front of the basal nervure, and does not reach the costa, nor does it extend beyond the brachial cellule.

B. *Abdomen white, banded with black.* (Species 9 to 11.)

9. **Hemiteles adultus.**

Hemiteles adultus, Cresson, Proc. Acad. Phil. 1873, p. 173 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

Differs from the next species in having the metathoracic tubercles "prominent, obtuse," the hind coxæ entirely yellowish, the first abdominal segment with only a spot on its apex, and the pleuræ entirely black; from *H. sexlineatus* it differs in the black pleuræ, and in the mesonotum being almost entirely black.

10. **Hemiteles flavovariegatus.** (Tab. X. fig. 23.)

Niger; facie, ore, orbitis læte, linea pronoti, mesopleuris, sterno, scutello, maculis 4 metathoracis, abdominisque segmentibus marginibus læte, flavis; pedibus pallide testaceis, coxis flavis; alis hyalinis, stigmate nigro. ♀.
Long. 8 millim.; terebra 1 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Antennæ longer than the body, the scape beneath and a broad ring on the flagellum white. Head broad, finely punctured. Mesonotum much more strongly and coarsely punctured than the head, the pleuræ not so strongly. Metathorax coarsely punctured and without tubercles or transverse keels. The prosternum, a broad band on the edge of the pronotum, the mesopleuræ (except above), the sternum, a large mark under the hind wings, a large mark (much narrowed behind) on the metapleura,

the scutellum, the postscutellum, and two large longish marks on the metanotum, yellow. First abdominal segment black, yellow at the base and apex; second segment yellow, with a large black transverse band at the base, the band narrowed at either side behind; the third to the fifth segments black, broadly yellow at the apex; the apical segments entirely yellow. Coxæ punctured, the posterior pair with a large black mark on the outer side; apices of the tarsi blackish, the hinder pair yellow. Areolet higher than long, open at the apex, angled sharply on the lower side.

11. **Hemiteles sexlineatus.**

Pallide flavus; antennis, lineis 6 thoracis, metanoti basi abdominisque segmentis basi, nigris; scapo subtus annuloque antennarum, albis; pedibus fulvis, coxis flavis; alis hyalinis, stigmate testaceo. ♀.
Long. 8 millim.; terebra 1·5 millim.

Hab. Mexico, Presidio (*Forrer*).

Antennæ, if anything, longer than the body, thickened towards the apex, covered with microscopic pile. Face punctured; clypeus and the lower part of the face projecting; tips of the mandibles black; the space surrounding the ocelli black, the black projecting as a narrow short line in front and joined to the black occiput by a narrow black line. Mesonotum closely punctured, the scutellum impunctate; pleuræ very finely striated, punctured. Metathorax very finely punctured, the transverse keel nearly straight; tubercles broadly dilated laterally, not projecting much. A line on the lower half of the pronotum, the mesonotum at the sides all round, a broad line on the middle lobe, a narrower one on each of the lateral lobes, the sutures, the base of the metanotum (except a small space at the spiracles), a narrow line going down from it on the outer side of the spiracles, and a broader and shorter one in the centre (not joined to the black base), black. Abdomen shining, impunctate; a band at the apex of the petiole in front of the postpetiole, a broad band at the base of the second segment (but not reaching to the base), and the base of the succeeding segments more narrowly, black. Hind coxæ punctured; hind tarsi yellowish, the tips black. Areolet wider than long, sharply angled on the lower side.

Easily known from the preceding species by the more prominent metathoracic tubercles, by the immaculate pleuræ, by the petiole having only a small black mark, and by the immaculate coxæ.

C. *Abdomen white and honey-yellow, with one or more black bands.* (Species 12 to 15.)

1. *Metathorax without tubercles.* (Species 12 and 13.)

12. **Hemiteles bimaculatus.**

Hemiteles bimaculatus, Cresson, Proc. Acad. Phil. 1873, p. 173 (♂ ♀) [1].

Hab. Mexico, Orizaba, Cordova [1] (*Sumichrast*).

Said to be a common species.

13. **Hemiteles centralis.**

Hemiteles centralis, Cresson, Proc. Acad. Phil. 1873, p. 174 (♀)[1].

Hab. MEXICO, Orizaba[1] (*Sumichrast*).

2. *Metathorax with tubercles.* (Species 14 and 15.)

14. **Hemiteles junctus.**

Hemiteles junctus, Cresson, Proc. Acad. Phil. 1873, p. 174 (♀)[1].

Hab. MEXICO, Cordova[1] (*Sumichrast*).

15. **Hemiteles scitulus.**

Hemiteles scitulus, Cresson, Proc. Acad. Phil. 1873, p. 174 (♀)[1].

Hab. MEXICO, Cordova[1] (*Sumichrast*).

D. *Abdomen ferruginous and white.* (Species 16 to 19.)

16. **Hemiteles monilis.**

Hemiteles monilis, Cresson, Proc. Acad. Phil. 1873, p. 174 (♀)[1].

Hab. MEXICO, Orizaba[1] (*Sumichrast*).

17. **Hemiteles sulsus.**

Hemiteles sulsus, Cresson, Proc. Acad. Phil. 1873, p. 175 (♀)[1].

Hab. MEXICO, Orizaba[1] (*Sumichrast*).

18. **Hemiteles admirabilis.**

Hemiteles admirabilis, Cresson, Proc. Acad. Phil. 1873, p. 175 (♀)[1].

Hab. MEXICO, Cordova[1] (*Sumichrast*).

19. **Hemiteles macula.**

Rufus; capite, prothorace, mesonoto, mesosterno antennisque, nigris; annulo antennarum, orbitis, labro, linea pronoti, maculis 2 mesonoti, scutello abdominisque apice, albis; alis hyalinis, medio fusco fasciato, stigmate testaceo. ♀.

Long. 11–12 millim.

Hab. MEXICO, Presidio (*Forrer*).

Antennæ scarcely so long as the body, somewhat thickened towards the apex, the white ring broad; the scape whitish in the middle beneath. Head finely rugose, still more finely on the top; face not projecting much; the orbits white all round; the clypeus and lower part of the head together with the mandibles ferruginous. Thorax opaque, closely punctured; scutellum aciculate, shining, the sides margined towards the base, which is much broader than the apex; postscutellum very shining; mesopleura longitudinally punctured. Metathorax rugose-striate; upper transverse keel straight, the lower keel obsolete; tubercles pallid, longer than broad. Petiole and postpeitole

smooth, shining, impunctate; the rest of the abdomen aciculate. The apical segments are white at the sides, the seventh segment broadly white above; the eighth segment, with the cerci, whitish. Legs stout; hind coxæ punctured. Areolet quadrate, the apical nervure pellucid; the apex, and a narrow band across from the stigma, smoky.

E. *Abdomen ferruginous or honey-yellow.* (Species 20 to 27.)

1. *Thorax marked with black.* (Species 20 to 23.)

20. **Hemiteles transilis.**

Hemiteles transilis, Cresson, Proc. Acad. Phil. 1873, p. 175 (♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

Differs from *H. albituberculatus* in having the metathorax black at the base only, the tubercles short and blunt, the prothorax white (except a black line above), &c.

21. **Hemiteles albituberculatus.** (Tab. X. fig. 25.)

Rufus; antennis, capite, pronoto, meso- metanotoque, nigris, annulo antennarum, clypeo, facie proparte, prosterno, macula pronoti, maculis 3 mesonoti, scutello, spinis metathoracis, albis; alis hyalinis, stigmate pallide testaceo. ♀.

Long. 9 millim.; terebra fere 2 millim.

Hab. Panama, Bugaba (*Champion*).

Antennæ distinctly longer than the body, thickened towards the apex; the scape white above in the middle. Head closely punctured; the orbits all round, the front below the antennæ broadly, the clypeus and labrum, white. Thorax finely punctured, the pleuræ more strongly striated; base of the metanotum coarsely punctured, the sides and apex coarsely striated and punctured. The thorax is black above (except the above-mentioned white markings); the prothorax broadly behind, the edge of the mesopleura in front, the suture at the metapleuræ, and the metanotum (except at the apex and the sides down from the spiracles), black; the mesopleura and a spot under the hind wings dull yellowish white. Scutellum not much narrowed at the apex, which is transverse, the base rounded. Tubercles long, acute; the part below them to near the apex white. Petiole shining, impunctate; postpetiole aciculate, white at the apex. The rest of the abdomen more opaque, more strongly aciculate; the sides from the third segment more or less white; the two apical segments white above in the centre. Hind coxæ punctured; hind tarsi inclining to yellowish, the apices black. Outer nervure of the areolet obsolete.

22. **Hemiteles montezuma.** (Tab. X. fig. 26.)

Rufus; facie, orbitis maculisque thoracis, albis; mesonoto nigro, albo maculatis; alis hyalinis, stigmate pallide testaceo. ♀.

Long. 7·5 millim.; terebra 1·5 millim.

Hab. Mexico, Orizaba (*Bilimek*).

Antennæ as long as the body; the scape obscure white, marked with black in the middle above; flagellum black, broadly white in the centre. Head minutely punctured; the face obscure reddish, more or less tinged with white; the rest of the head white, except the centre of the vertex and the posterior region broadly in the middle. Thorax shining, almost impunctate. Metathorax at the sides and behind the upper transverse keel rugose-striate; the base impunctate, shining, the keel joined to the base by two short carinæ, which form a narrow area; lower keel almost obsolete; tubercles broad. Mesonotum black, with two white lines on each side at the base of the middle lobe and two larger ones on the lateral lobes, bordering the middle lobe at the apex. Scutellum white; the rest of the thorax pallid testaceous, more or less suffused with white. Abdomen finely and closely punctured, the apical segments slightly bordered with white; petiole shining, impunctate. Legs testaceous; the anterior and hind tarsi whitish or whitish yellow; hind coxæ finely punctured. Areolet higher than long, angled on the lower side; the outer nervure pretty distinct.

23. **Hemiteles servilis.**

Hemiteles servilis, Cresson, Proc. Acad. Phil. 1873, p. 176 (♀) [1].

Hab. Mexico, Cordova [1] (*Sumichrast*).

2. *Thorax entirely ferruginous.* (Species 24 to 27.)

a. *Head black, orbits white.* (Species 24 and 25.)

24. **Hemiteles ornaticeps.** (Tab. X. fig. 24.)

Ferrugineus; antennis (annulo excepto) nigris; annulo flagello antennarum, orbitis, clypeo, tarsisque posticis medio læte, albis; alis hyalinis, stigmate nigro. ♀.

Long. 11 millim.; terebra 3 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Antennæ stout, bare, thickened towards the apex; the white ring broad. Head finely rugose; the clypeus shining, impunctate; face semibuccate; the orbits white, except in the centre behind; there is a triangular white mark below the antennæ, and the clypeus may be more or less white, or coloured like the rest of the head. Mesonotum shining, aciculate, the three lobes well developed and with distinct sutures; pleuræ longitudinally punctured, opaque. Scutellum smooth, shining, almost impunctate; the sides carinate at the base; flat, much narrowed towards the apex. Metathorax rugose-striate; the two transverse keels distinct, the lower keel forming a semicircular curve in the middle; tubercles longer than broad, rather blunt at the apex. Petiole aciculate, the sides keeled; postpetiole shining, impunctate; the rest of the abdomen semiopaque, aciculate. Legs stout; hind coxæ finely punctured; hind tarsi white, black at the base and apex. Areolet higher than long, angled on the lower side.

25. **Hemiteles leucosoma.**

Ferrugineus; antennis capiteque nigris; annulo antennarum, ore, prothoraceque antice, albis; alis flavo-hyalinis, medio apiceque fumatis, stigmate testaceo. ♀

Long. 7 millim.; terebra 2 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ longish; scape obscure brownish on the lower side. Head opaque, finely punctured all over. Thorax finely punctured, the sides more or less striated. The prosternum broadly, the tubercles below the tegulæ, and the metathoracic tubercles, clear white. Sutures of the mesonotum obsolete. Metathorax more strongly punctured than the mesothorax; the transverse keels distinct; tubercles stout, rounded at the apex, scarcely twice as long as wide. Abdomen (including the petiole) finely and closely punctured; the apical segments yellowish at the apex. Coxæ punctured. The middle fascia in the wings is placed between the basal nervure and the base of the stigma; the cloud at the apex is broader. Areolet higher than long, open at the apex.

b. *Head ferruginous.* (Species 26 and 27.)

26. **Hemiteles mexicanus.**

Pallide ferrugineus; antennis nigris, medio annulo albo, basi testacea; orbitis flavis; alis hyalinis, fusco bifasciatis. ♀.

Long. 7 millim.; terebra 2 millim.

Hab. MEXICO (*Sallé*).

Antennæ longer than the body. Head and thorax very finely punctured, shining; scutellum aciculate; metathorax, if anything, more strongly punctured; the two transverse keels distinct, but very slightly bent upwards; tubercles absent. Abdomen finely punctured; petiole aciculate, yellowish at the base. Coxæ finely punctured; the legs more pallid in tint than the body, especially the anterior pair and the tarsi; the latter blackish at the apex. The wings have a cloud at the basal nervure, and one at the areolet, and the apex is faintly clouded. Areolet angled on the lower side; the rest and the stigma torn off.

27. **Hemiteles ruficornis.**

Rufo-testaceus; facie tarsisque pallidis; alis hyalinis, fusco bifasciatis. ♂.

Long. 9 millim.

Hab. GUATEMALA, Zapote (*Champion*).

Antennæ stout, if anything, thickened towards the apex, covered with a microscopic pile. Head minutely punctured; tips of the mandibles blackish; palpi longish, pale testaceous. Thorax closely punctured, the pleuræ more strongly than on the top, and more or less striated. Scutellum shining, impunctate. Metathorax closely punctured all over; upper transverse keel thin but distinct; tubercles and lower keel absent.

Mesonotal sutures indistinct. Pleural sutures black. First abdominal segment longish, narrow, shining, impunctate; the other segments finely punctured. The abdomen is longish and rather narrow. Coxæ punctured. Areolet 5-angular, the lower side sharply angled, the latter nervures converging at the top, the outer nervure moderately distinct. There is a distinct curved smoky cloud at the stigma, and a fainter and narrower one at the basal nervure, and the apex is also clouded.

Subfam. *PIMPLINÆ.*

So far as our present knowledge goes, this subfamily is not very numerously represented in Central America; although, on the other hand, one or two species of "Pimplinæ" appear to be the commonest of all the Ichneumons in that country. Some of the species are difficult of generic location, owing to the characters on which genera have hitherto been grounded varying in such a way as to lead one to conclude that such characters (*e. g.* the form of the abdomen) cannot be looked upon as of higher than specific rank.

RHYSSA.

Rhyssa, Gravenhorst, Ichn. Europ. iii. p. 260.

This genus contains the largest species of Pimplinæ. Our two species have the apex of the clypeus truncated, not produced in the middle, and consequently agree with *Thalessa*, Holmgren; but they have also the abdominal segments not incised, and thus differ from the latter. Species of the genus (which, considering its wide distribution, is not a large one) are found in most parts of the world, including New Zealand.

1. **Rhyssa nigritarsis.** (Tab. XI. fig. 3, ♀.)

Fulvo-testacea; antennis, mesonoto (medio excepto), linea metanoti, abdomine supra tarsisque, nigris; alis hyalinis, apice fumato. ♀.

Long. 22 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

Antennæ nearly as long as the body, stout, gradually thickened towards the apex; the base testaceous on the lower side. Head, if anything, broader than the mesothorax, the face strongly punctured, the clypeus obscurely transversely striated; with two deep shining black depressions above the antennæ, separated by a thin, rather sharp, partition; vertex punctured in front laterally, behind the ocelli aciculated; mandibles black at the apex. Pronotum reaching to near the top of the head, rising rather perpendicularly in front; the mesonotum projects a little over it, and rises from the scutellum to the apex, which has a distinct margin; the margin projects upwards in the centre, and is depressed in the middle. Mesonotum transversely striated as usual, and with a longitudinal furrow on each side on the apical three fourths; scutellum shining, obscurely

punctured, broader than long, slightly narrower towards the apex. Pleuræ shining, obscurely punctured, a longish longitudinal hollow in the middle. The mesonotum is black, except laterally in front and down the centre. Scutellum testaceous, the sutures black. There is a longish black mark under the fore wings; the base and apex of the metanotum and a broad line down its centre are black. The longish curved spiracles are bordered with black. Metanotum shining, impunctate; a curved transverse keel runs across its centre, and an oblique one from the spiracles to the apex. Abdomen shining, somewhat compressed, black above, the apex pilose; in the centre of the penultimate segment is a somewhat triangular depression covered with a white membrane; the last segment above forms a projecting thickly pilose lobe; on the lower side it projects more, and ends in two sharp horny processes which clasp the ovipositor. Ovipositor nearly three times longer than the body, white at the apex. Legs shining; the hind coxæ black at the base on the lower side. Areolet large, triangular, receiving the recurrent nervure in the middle.

2. **Rhyssa carinifrons.**

Testacea, nigro varia; antennis nigris, medio apiceque subtus testaceis; pedibus rufo-testaceis; basi et apice coxarum posticarum, apice femorum, dimidio apicali tibiarum posticarum tarsisque, nigris; alis hyalinis, apice fumato. ♀.

Long. 21 millim.

Hab. NICARAGUA, Chontales (*Janson*); PANAMA (*Boucard*).

Antennæ as long as the body; the base, the middle narrowly, and the apex (except the extreme point), testaceous on the lower side. Face transversely punctured, the vertex impunctate; a distinct keel (separating the antennal depressions) runs down from the ocelli to a little below the base of the antennæ; eyes margined, especially on the inner side and above; testaceous, the mandibles, the antennal depressions, a broad transverse band on the vertex enclosing the ocelli, and the hind region, black. Thorax formed as in *R. nigritarsis*, testaceous; the mesonotum (except a broad mark in the centre), the sutures, the base of the metanotum broadly, the sides of the prothorax in front, a large mark on the mesopleura, and the metapleura close to the sternum, black. In the centre of the metanotum two short keels run from the transverse keel, forming a somewhat square area. Abdomen black; the ventral surface, a longish mark at the base of the first segment in the centre, its apex and the apices of the other segments broadly, testaceous. The middle coxæ are black beneath; the hind coxæ are black on the lower side at the base, and bear a longer black mark on the apex above, on the inner side they are entirely black, except a small testaceous spot; the hind femora are infuscate towards the apex, and more than the apical half of the hind tibiæ is black; tarsi black, testaceous in the middle.

What appears to be the male (from Panama) differs from the specimen from Nicaragua in having a broad white band on the antennæ close to the apex, and the yellow on the head

and body brighter in tint; there is no black on the coxæ, nor are the hind femora infuscate towards the apex; the black on the hind tibiæ is only on the outer side; and the abdomen is broadly dilated laterally at the apex.

EPIRHYSSA.

Epirhyssa, Cresson, Hymen. of Cuba, p. 39.

This genus agrees with *Rhyssa* in having the mesonotum transversely striated, but is sufficiently distinguished from it otherwise by the fore wings having no areolet. Two species have been described from Cuba, and one is known from Japan. The clypeus at the apex is incised, the incision, however, being very broad and truncated.

1. **Epirhyssa mexicana.** (Tab. XI. fig. 2.)

Epirhyssa mexicana, Cresson, Proc. Acad. Phil. 1873, p. 394 (♀)[1].

Hab. Mexico, Orizaba[1], Cordova[1] (*Sumichrast*); Guatemala, San Gerónimo (*Champion*).

EPHIALTES.

Ephialtes, Gravenhorst, Ichn. Europ. iii. p. 224.

There are not many species of this genus known; but it seems to be, if anything, more numerously represented in the New than in the Old World.

1. **Ephialtes atriceps.**

Ephialtes atriceps, Cresson, Proc. Acad. Phil. 1873, p. 394 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

2. **Ephialtes annulicornis.** (Tab. XI. fig. 1.)

Niger, flavo varius; annulo flagello antennarum pedibusque flavis; coxis posticis nigro maculatis; alis flavo-fumatis, stigmate flavo.

Long. 20 millim.; terebra 30 millim.

Hab. Guatemala, San Isidro 1600 feet, San Gerónimo (*Champion*); Panama, Volcan de Chiriqui 2000 to 6000 feet (*Champion*).

Antennæ stoutish, as long as the metathorax and abdomen together, of nearly equal thickness throughout, covered with microscopic pile, the scape more or less testaceous. Head shining, impunctate, shortly pilose; tips of the mandibles, a transverse line above the antennæ, a line across the vertex through the ocelli and the occiput, black. Thorax yellowish testaceous; three longish black lines on the mesonotum; the pleural sutures, the apical half of the scutellum, the base of the metanotum, a triangular mark and an oblique line down the side, black. Mesonotum obscurely punctured, the punctures sometimes nearly obsolete; sutures deep. In the centre of the metanotum are two furrows in the form of a triangle, of which the narrow end is at the base; this

triangle is either entirely, or lined laterally with, black. Petiole broad, depressed in the centre and at the sides towards the apex; shining, impunctate. The rest of the abdomen closely punctured; the sides above projecting in the centre, and with a broad transverse furrow at the apex; an oblique depression on each side of the base of the second segment; the second and third segments are a little longer than broad, the others broader than long. Legs yellowish testaceous, the four anterior trochanters and the base of the femora more or less black; a broad line on the hind coxæ on the outer side, and the hind femora more or less lined with black above; the base and apex of the hind tibiæ sometimes black. Wings yellowish smoky, lighter posteriorly.

A very variable species. Some specimens are lighter coloured than what I have described above, the thorax and especially the abdomen having very little black. Other specimens have the abdominal segments black, narrowly edged with yellow behind. An example from the Volcan de Chiriqui (4000 to 6000 feet) has the thorax almost entirely black, except the mesopleura broadly in the middle and the mesosternum; the hinder coxæ entirely black, and the middle coxæ black behind, the femora, moreover, being more broadly lined with black; the head also bears more black than usual. The extent of the yellow ring on the antennæ varies, and the sheaths of the ovipositor vary in colour from black to piceous.

3. **Ephialtes nigricans.** (Tab. XI. fig. 5.)

Niger; femoribus, tibiisque anterioribus flavo-testaceis, tibiis posticis sordide testaceis; alis fusco-hyalinis, stigmate nigro. ♀.
Long. 21 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Antennæ thickish, shorter than the body. Face covered with longish white hair, finely punctured; a broad transverse depression above the antennæ; a short broad furrow leads into this from the ocelli. Thorax shining, indistinctly punctured, sparsely covered with white hair; metanotum broad in the middle, transversely striated, the base punctured, the apex shining and impunctate. Abdomen closely punctured, less strongly so towards the apex, the sides covered with longish white hair; a longish irregular depression on either side of the basal segments; the other segments dilated in the middle on either side. The ventral surface is obscure testaceous; above, the apical segments are more or less brownish. The ovipositor is longer than the body. The anterior tarsi are testaceous in front, partly black behind. Areolet broadly triangular.

THERONIA.

Theronia, Holmgren, Œfv. 1859, p. 123; Sv. Ak. Handl. 1860, p. 16.

The species of this small genus are usually yellow or luteous in coloration. They are found in Europe and North America, very few species, however, being known.

1. **Theronia montezuma.**

Theronia montezuma, Cresson, Proc. Acad. Phil. 1873, p. 395 (♂ ♀)[1].

Hab. MEXICO, Orizaba, Cordova (*Sumichrast*), Mirador [1] (*Dr. Sartorius*).

Said to be a common Mexican species.

2. **Theronia lineata.** (Tab. XI. fig. 4.)

Pimpla lineata, F. Smith, Descr. of New Species of Hymen. p. 230 (1879) [1].

Hab. GUATEMALA, San Gerónimo, Zapote, Panajachel 5000 feet; COSTA RICA, Irazu [1] 6000 to 7000 feet (*Rogers*); PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Allied to the preceding species, but differing in having the antennæ nearly as long as the body (these in *T. montezuma* being described as "more than one half the length of the body"), by the petiole not having "two longitudinal lines, divergent at the base and confluent at the tip," and by the abdominal segments being lined with black at the base. Face obscurely punctured, the vertex sometimes obscure black in the middle; tips of the mandibles black. Mesonotum sometimes punctured; its sutures scarcely indicated; there are three black longitudinal lines on its surface, and sometimes it is black along the edge of the pronotum. Scutellum covered with blackish erect hair; its basal fovea black. Metathorax shining, impunctate, its transverse keel well defined. Petiole longer than the second segment, depressed along the sides above, so that the central part is raised; and in the centre of the latter is a longitudinal depression; apex of the second segment raised into a transverse border. Ovipositor about one half of the length of the abdomen. Areolet oblique, the lateral nervures united above or nearly so. Antennæ stout, microscopically pilose; scape yellowish beneath.

The species varies a little in size.

3. **Theronia tolteca.**

Theronia tolteca, Cresson, Proc. Acad. Phil. 1873, p. 396 (♂ ♀)[1].

Cryptus ferrugineus, F. Smith, Descr. of New Species of Hymen. p. 231 (1879)[2].

Hab. MEXICO, Orizaba [1] (*Sumichrast*), Valladolid in Yucatan (*Gaumer*); NICARAGUA, Chontales (*Janson*); COSTA RICA, Cache [2] (*Rogers*); PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

4. **Theronia chiriquensis.** (Tab. XI. fig. 6.)

Hab. PANAMA, Volcan de Chiriqui 2000 to 6000 feet (*Champion*).

In coloration identical with *T. tolteca* (*i. e.* uniformly ferruginous above, the pleuræ and the base of the four anterior legs inclining to yellow, the flagellum and the hind tarsi black), but, if anything, longer and stouter, and differing also as follows:—The ovipositor is shorter, being scarcely longer than the petiole; the metanotum has,

in addition to the transverse carina, an equally distinct carina going down each side from a transverse keel at the extreme base; by the depression in the middle of the metanotum at the base being longer and broader; by the scutellum being more gibbous; by the petiole having distinct tubercles in the centre towards the middle, there being also a longitudinal depression in the middle above. The wings are, as in *T. tolteca*, hyaline, smoky at the apex, the cloud being darkest. Antennæ as long as the body.

5. **Theronia mellosa.**

Theronia mellosa, Cresson, Proc. Acad. Phil. 1873, p. 396 (♂ ♀) [1].

Hab. MEXICO, Orizaba, Cordova [1] (*Sumichrast*).

6. **Theronia tacubaya.**

Theronia tacubaya, Cresson, Proc. Acad. Phil. 1873, p. 397 (♂ ♀) [1].

Hab. MEXICO, Orizaba, Cordova [1] (*Sumichrast*).

Said to be common in Mexico.

7. **Theronia consimilis.**

Pimpla consimilis, Cresson, Proc. Ent. Soc. Phil. iv. p. 37 (♀) [1].
Theronia consimilis, Cresson, Proc. Acad. Phil. 1873, p. 397 [2].

Hab. MEXICO, Orizaba, Cordova [2] (*Sumichrast*), Mirador [2] (*Dr. Sartorius*).—ANTILLES, Cuba [1].

PIMPLA.

Pimpla, Fabricius, Syst. Piez. p. 112.

An extensive genus, common in all parts of the world.

1. **Pimpla sedula.** (Tab. XI. fig. 10, ♀.)

Nigro-cærulea, nitida; alis fumatis. ♀.
Long. 13 millim.; terebra 4 millim.

Hab. PANAMA, Volcan de Chiriqui 8000 feet (*Champion*).

Smooth, shining, impunctate. Antennæ as long as the body; the third joint scarcely so long as the two following joints united. Sides of the metanotum obscurely transversely striated, the middle transverse keel very distinct. Scutellum carinate at the base. Base of the abdomen semiperpendicular, hollow in the centre; sides of the segments depressed in the centre above. Areolet 4-angled, angled where the recurrent nervure is received in the apical third.

Allied to *P. cæruleata*, but larger and wanting the metallic blue and violet tinges, and otherwise very different in having the body quite devoid of sculpture.

2. **Pimpla cæruleata.**

Pimpla cæruleata, Cresson, Proc. Acad. Phil. 1873, p. 397 (♂ ♀) [1].

Hab. Mexico, Orizaba, Cordova [1] (*Sumichrast*).

3. **Pimpla croceipes.** (Tab. XI. fig. 12, ♀.)

Pimpla croceipes, Cresson, Proc. Acad. Phil. 1873, p. 398 (♂ ♀) [1].
Pimpla modesta, F. Smith, Descr. of New Species of Hymen. p. 229 [2].

Hab. Mexico, Orizaba [1] (*Sumichrast*); Guatemala, San Gerónimo, Purula, Las Mercedes 3000 feet (*Champion*); Costa Rica, Cache, Irazu [2] 6000 to 7000 feet (*Rogers*); Panama, Volcan de Chiriqui 2000 to 6000 feet (*Champion*).

One of the commonest and most widely distributed of the Central-American Ichneumons. It varies greatly in size.

4. **Pimpla punicipes.** (Tab. XI. fig. 16, ♀.)

Pimpla punicipes, Cresson, Proc. Acad. Phil. 1873, p. 398 (♀) [1].

Hab. Mexico, Ciudad in Durango 8100 feet (*Forrer*), Orizaba [1] (*Sumichrast*).

5. **Pimpla montezuma.**

Hab. Mexico, Chapultepec (*Bilimek*).

Identical in coloration with *P. punicipes* (black, with the legs red and the tegulæ white), but smaller and narrower; the antennæ shorter, being scarcely longer than the abdomen, while in *P. punicipes* they are nearly as long as the thorax and abdomen together; the ovipositor much longer, being fully three fourths of the length of the abdomen; the metanotum shining and impunctate; the petiole shining and scarcely punctured, and with an oblique punctured depression on each side at the apex above; the abdomen longer, the segments not so strongly punctured, and with a wider impunctate band at the apices; the wings have a darker tint, and have the stigma livid testaceous. The pleuræ and head are punctured, but not strongly; palpi yellow; sheath of the ovipositor densely pilose.

6. **Pimpla feralis.**

Pimpla feralis, Cresson, Proc. Acad. Phil. 1873, p. 399 (♂) [1].

Hab. Mexico, Milpas 5900 feet (*Forrer*), Orizaba [1] (*Sumichrast*); Guatemala, Volcan de Atitlan 2500 to 3500 feet (*Champion*).

7. **Pimpla mexicana.**

Nigra; tegulis palpisque albis; scutello, pedibus maculaque pleurali rufis; tibiis posticis albis, apice nigris; tarsis posticis pallidis, nigro annulatis; alis subfumatis, stigmate sordide testaceo. ♀.
Long. 10 millim.; terebra 1·5 millim.

Hab. Mexico (*Bilimek*).

Antennæ scarcely so long as the abdomen; fuscous on the lower side (especially towards the base of the flagellum); covered with a microscopic pile. Head finely punctured, semiopaque. Mesonotum aciculate; pleuræ shining, impunctate; a broad oblique reddish band proceeding from the tegulæ to the hind coxæ. Metathorax finely punctured, aciculate in the middle above. Abdomen closely and somewhat strongly punctured, the apices of the segments shining. Sheaths of the ovipositor thick, densely pilose, a little shorter than the tibiæ.

8. **Pimpla crassicauda.**

Pimpla crassicauda, Cresson, Proc. Acad. Phil. 1873, p. 399 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

9. **Pimpla albipes.**

Pimpla albipes, Cresson, Proc. Acad. Phil. 1873, p. 399 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

10. **Pimpla coxata.** (*Pimpla coxator*, Tab. XI. fig. 14, ♀.)

Pimpla coxata, F. Smith, Descr. of New Species of Hymen. p. 229 (1879)[1].

Hab. Costa Rica, Irazu[1] 6000 to 7000 feet (*Rogers*).

This is perhaps only a variety of *P. albipes*; it has, however, the hind coxæ lined with black on the inner and outer sides.

11. **Pimpla albo-marginata.** (Tab. XI. fig. 15, ♀.)

Nigra; labro, palpis, maculis thoracis, linea pronoti, tegulis, metathoracis apice, scutello, abdominis apice pedibusque anticis, albis; pedibus posterioribus rufis; tibiis tarsisque posticis nigris; alis hyalinis, stigmate fusco. ♀.

Long. 7·5 millim.; terebra 2 millim.

Hab. Mexico (*Sallé*).

Antennæ nearly as long as the body, filiform; fuscous on the lower side of the flagellum, white on the lower side of the scape; third joint a little shorter than the two following joints together. Head sparsely covered with whitish pile, very minutely punctured; face broadly projecting. Thorax scarcely punctured, shining; a broad line above the prosternum, a broader one on the edge of the pronotum, the tegulæ, the tubercles below them, a somewhat pear-shaped mark on the mesopleura, a longish oblique line along the suture, the hind wings beneath, a roundish mark over and a little in front of the middle coxæ, another over the hind coxæ, the scutellum, the postscutellum, the apex of the metathorax, and the apices of all the abdominal segments broadly, white. Over the hind coxæ the metapleuræ are reddish like the hind legs, the white mark being within

this red space. Petiole reddish at the sides and in the middle; the sides above at the base white; the middle broadly black. Ovipositor piceous red. The middle tibiæ have an obscure white band above the middle; the hind pair are obscure reddish on the outer side; the tips of the fore tarsi and the greater part of the middle tarsi fuscous. Wings slightly tinted with a smoky hue at the apex; nervures fuscous; areolet oblique, outer nervure pale; the recurrent nervure received beyond the middle in an obtuse angle.

12. **Pimpla semisanguinea.**

Pimpla semisanguinea, Cresson, Proc. Acad. Phil. 1873, p. 400 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

13. **Pimpla sumichrasti.**

Pimpla sumichrasti, Cresson, Proc. Acad. Phil. 1873, p. 400 (♀)[1].

Hab. Mexico, Cordova[1] (*Sumichrast*).

14. **Pimpla azteca.**

Pimpla azteca, Cresson, Proc. Acad. Phil. 1873, p. 401 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

15. **Pimpla marginipennis.**

Pimpla marginipennis, Cresson, Proc. Acad. Phil. 1873, p. 401 (♀)[1].

Hab. Mexico, Cordova[1] (*Sumichrast*).

16. **Pimpla zonata.**

Pimpla zonata, Cresson, Proc. Acad. Phil. 1873, p. 401[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

17. **Pimpla zapoteca.**

Pimpla zapoteca, Cresson, Proc. Acad. Phil. 1873, p. 402 (♂ ♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

18. **Pimpla (?) chichimeca.**

Pimpla (?) *chichimeca,* Cresson, Proc. Acad. Phil. 1873, p. 402 (♂)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

19. **Pimpla ichneumoniformis.**

Pimpla ichneumoniformis, Cresson, Proc. Acad. Phil. 1873, p. 403 (♂)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

20. **Pimpla xanthostigma.** (Tab. ~~XX~~ XI. fig. 9, ♀.)

Nigra, flagello antennarum testaceo; alis flavo fumatis, stigmate flavo. ♀.
Long. 16 millim.; terebra 5 millim.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Antennæ longer than the body, the third joint nearly as long as the two succeeding joints together. Head closely punctured; vertex broadly depressed in front of the ocelli. Pro- and mesonotum opaque, very closely punctured; pleuræ and scutellum more shining and with the punctures more widely set apart. Metapleura coarsely rugose; metanotum coarsely transversely striated. First abdominal segment more than double as long as wide, longitudinally punctured, the base and apex shining, impunctate, the base hollowed in the centre; there is a distinct shining tubercle on either side of the middle of the segment. The other segments punctured, the punctuation becoming finer towards the apex; the apices shining, almost impunctate. The anterior tibiæ and femora are testaceous in front; the tibiæ reddish, the stiff pile with which they are covered being also reddish; spurs reddish. Areolet slightly pedunculate above; the recurrent nervure received in the apical third.

The wings vary in tint, the hind portion being usually lighter than the front. The face and the sides of the metanotum and of the basal segment of the abdomen are sometimes brownish.

21. **Pimpla cressoni.**

Pimpla braconoides, Cresson, Proc. Acad. Phil. 1873, p. 404 (♀)[1] (nec Smith).

Hab. MEXICO, Orizaba[1] (*Sumichrast*).

22. **Pimpla atriceps.**

Pimpla atriceps, Cresson, Proc. Acad. Phil. 1873, p. 404 (♂)[1].

Hab. MEXICO, Cordova[1] (*Sumichrast*).

23. **Pimpla argentifrons.** (Tab. XI. fig. 17, ♀.)

Nigra, scutello tegulisque albis; abdomine pedibusque rufis; coxis anterioribus palpisque flavis; alis hyalinis, stigmate testaceo. ♀.
Long. 14–16 millim.; terebra 4–5 millim.

Hab. GUATEMALA, Mirandilla 1700 feet (*Champion*); PANAMA (*Boucard*).

Antennæ thin, longer than the body. Head and metathorax covered with a silvery pubescence; face closely punctured, the centre not so strongly; vertex shining, impunctate; clypeus and labrum more or less white. Pro- and mesothorax semiopaque, obscurely aciculated. Metapleura somewhat strongly punctured; basal half of the metanotum strongly transversely striated, the apex shining, impunctate, and with rather an oblique slope, without distinct transverse keel. Basal segment of the abdomen broad, about one half longer than wide; the basal half hollowed, shining, almost

impunctate; the apical half strongly punctured, except at the apex, which is shining and impunctate; the rest of the abdomen closely punctured, the punctuation finer towards the apex. Tips of the tarsi blackish; coxæ shining, impunctate. Areolet sharply angled where the recurrent nervure is received a little beyond the middle.

EPIMECIS.

Epimecis, Brullé, Hist. Nat. Ins. Hymén. iv. p. 112.

The chief distinctive characters of this genus consist in the greatly elongated prothorax, the head being narrower behind so as to fit into it, the head here being wider than the collar and provided with a distinct raised border; the eyes are large, lateral, projecting, incised at the antennæ, above almost touching the ocelli, below nearly reaching to the mandibles; the ocelli large, oval, and placed on the extreme summit of the head; the mesonotal sutures moderately deep; the abdomen much more than double the length of the thorax, narrow, becoming gradually wider towards the apex, with a depression on each side of the first four segments; there is no areolet, and the spurs are simple.

The elongated collar, the eyes reaching to the base of the mandibles, and the existence of depressions at the sides of the abdominal segments sufficiently distinguish this genus from *Pimpla*.

1. **Epimecis (?) thoracica.**

Epimecis (?) *thoracicus*, Cresson, Proc. Acad. Phil. 1873, p. 395 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

2. **Epimecis tibialis.** Tab. XII. fig. 1, ♀.)

Lutea; antennis, capite, femoribus posticis, tibiarum posticarum dimidio apicali, apice tarsorum abdominisque apice, nigris; alis flavo-hyalinis, nigro fasciatis. ♀ et ♂.
Long. 21 millim.; terebra 8 millim.

Hab. Mexico, Valladolid in Yucatan (*Gaumer*); Guatemala, San Gerónimo (*Champion*); Panama, David in Chiriqui (*Champion*).

Antennæ as long as the body, inclining to brownish on the lower side, covered with a microscopic pile; scape with longish hair; the joints a little produced at the apices; third joint nearly one fourth longer than the fourth. Head shining, impunctate; face bluntly keeled; clypeus projecting and clearly separated; palpi dark testaceous. Thorax shining, impunctate; scutellum gibbous; an indistinct furrow in the centre of the basal half of the metathorax. Abdomen shining, impunctate; a tubercle at the base of the four basal segments; apex pilose, punctured laterally; cerci longish, hairy. Legs densely pilose. In the fore wings the middle cloud ends at the base of the stigma, and that in the hind wings is immediately opposite it; the apical cloud in the fore wings commences a little beyond the recurrent nervure.

E. fasciata, Brullé, from Brazil, is very like the present species, and may be a variety of it.

3. **Epimecis mexicana.**

Lutea; antennis, capite (ore excepto) pedibus posticis abdominisque apice læte, nigris; alis flavo-hyalinis, nigro fasciatis, stigmate flavo. ♀.
Long. 12 millim.; terebra 5 millim.

Hab. Mexico (*Bilimek*).

Differs from *E. tibialis* in being smaller, and in the apex of the abdomen being more widely, and in the hind legs being entirely, black.

GLYPTA.

Glypta, Gravenhorst, Ichn. Europ. iii. p. 4.

A well-marked genus of wide distribution.

1. **Glypta longula.**

Glypta longula, Cresson, Proc. Acad. Phil. 1873, p. 405 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

2. **Glypta rufomarginata.** (Tab. XI. fig. 18, ♀.)

Nigra; thorace rufo, ore, linea pronoti, tegulis, postscutello pedibusque, albis; antennis nigris, subtus fuscis; alis hyalinis, stigmate fusco. ♀.
Long. 8 millim.; terebra 6 millim.

Hab. Mexico, Chapultepec (*Bilimek*).

Antennæ scarcely so long as the body, moderately stout, the joints closely united together. Mesonotal sutures not very distinct; edge of the pronotum produced into a tubercle in front. Pronotum edged above and beneath with white; a blackish mark dilated laterally (posteriorly) in the middle, the rest reddish; mesothorax red, except the sutures and the scutellar region which are black, and a large yellow mark on the mesopleura; the sternum also inclining to yellow; metanotum black, except laterally, with a transverse keel across just beyond the middle, and another immediately behind the extreme apex. Abdomen closely punctured; the oblique lines broad and moderately deep; the edges of the segments raised; the ventral surface and the edges of the segments (the third and fourth broadly) reddish. Ovipositor black, pilose, longer than the abdomen. The hind coxæ incline to fulvous; the extreme apices of the tibiæ, and the tarsal joints narrowly at the apex, black.

3. **Glypta albopicta.**

Glypta albopicta, Cresson, Proc. Acad. Phil. 1873, p. 405 (♂)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

4. **Glypta decolorata.**

Glypta decolorata, Cresson, Proc. Acad. Phil. 1873, p. 406 (♂)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

ODONTOPIMPLA.

In the form of the body this genus agrees with *Pimpla*, but differs from it in having the hind femora thickened and with a tooth on the middle beneath; the tibiæ are stouter, the anterior pair being curved and slightly dilated at the apical half, and the posterior pair curved at the base; the tibial spurs are very short and thick; the tarsi are much shorter than the tibiæ, and the antennæ are stouter; and the clypeus is incised.

The petiole is deeply excavated on the basal half; on the other abdominal segments there is a deep curved transverse depression, there being also a longitudinal one running into the transverse furrow on the second segment; the depression on the sixth segment is interrupted in the middle; the seventh segment is broadly, but not deeply, depressed in the centre, and there is an obscure, shallow, narrow furrow on the eighth. The ventral segment, the neuration, and the form of the head as in *Pimpla*.

The structure of the femora is not unlike what we have in *Odontomerus*, but in that genus the form of the head and abdomen is different, and there is no areolet.

1. **Odontopimpla pulcherrima.** (Tab. XI. fig. 11, ♀.)

Pimpla (?) *pulcherrima*, Cresson, Proc. Acad. Phil. 1873, p. 404 (♀)[1].

Pimpla lævigata, F. Smith, Descr. of New Species of Hymen. p. 229 (1879)[2].

Hab. Mexico, Cordova[1] (*Sumichrast*); Costa Rica, Cache[2] (*Rogers*).

LYCORINA.

Lycorina, Holmgren, Sv. Ak. Handl. 1860, p. 43; Cresson, Proc. Acad. Phil. 1873, p. 406.

1. **Lycorina (?) apicalis.**

Lycorina (?) *apicalis*, Cresson, Proc. Acad. Phil. 1873, p. 407 (♀)[1].

Hab. Mexico, Cordova[1] (*Sumichrast*).

MENISCUS.

Meniscus, Schiödte in Guérin's Mag. Zool. 1839, Ins. t. 6–10, p. 10.

1. **Meniscus crassitarsus.**

Meniscus crassitarsus, Cresson, Proc. Acad. Phil. 1873, p. 409 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

2. Meniscus mexicanus.

Meniscus mexicanus, Cresson, Proc. Acad. Phil. 1873, p. 410 (♀)[1].

Hab. Mexico, Cordova[1] (*Sumichrast*).

3. Meniscus (?) alternatus.

Meniscus (?) *alternatus*, Cresson, Proc. Acad. Phil. 1873, p. 410 (♂)[1].

Hab. Mexico, Cordova[1] (*Sumichrast*).

4. Meniscus (?) orbitalis.

Meniscus? *orbitalis*, Cresson, Proc. Acad. Phil. 1873, p. 411 (♀)[1].

Hab. Mexico, Cordova[1] (*Sumichrast*).

LISSONOTA.

Lissonota, Gravenhorst, Ichn. Europ. iii. p. 30 (1829).

The species I have described here are better placed in *Lissonota* than in any other genus. The only point in which they differ from the typical species is that the clypeus is slightly incised. None of the species have an areolet, but the absence of this is not looked upon as of generic value.

1. Lissonota albispina. (Tab. XI. fig. 19.)

Nigra; annulo antennarum, orbitis anticis tarsisque posticis, albis; alis fere hyalinis, stigmate nigro. ♀.

Long. 12–13 millim.

Hab. Panama, Volcan de Chiriqui 200 to 600 feet (*Champion*).

Very closely and uniformly punctured all over, the legs more closely and finely punctured than the body. Antennæ as long as the body, the white band interrupted on the lower side. Head projecting in the middle in front, the projection depressed at the base and apex; clypeus projecting, more strongly punctured than the face; labrum, and the apical joints of the palpi, white. Mesonotum without sutures; metanotum longish, having a gradual slope to the apex, with a distinct longitudinal keel on the outer side of the spiracles, an indistinct transverse one not far from the apex, and a more distinct one immediately before the apex. Pleuræ covered with short silvery pubescence. Abdomen carinate on the ventral surface at the base, the first segment the longest; the apices of the first and second segments, the base of the third narrowly, and the apical segments at the apex more broadly, white. Basal three fourths of the metatarsus, and the apices of the hind tarsi, black.

2. Lissonota leucozona.

Nigra; ore, facie, orbitis, tegulis, sterno, pleuris pro parte, lineis 2 mesonoti, scutello, postscutello, metanoto laterali, abdominis segmentis apice, coxis anterioribus, tibiarum posticarum dimidio basali medioque tarsorum posticorum, albis; alis hyalinis, stigmate nigro. ♀.

Long. 11 millim.

Hab. Guatemala, El Tumbador 2500 feet (*Champion*).

Finely and closely punctured all over, the abdomen more shining and less strongly punctured than the thorax. Face with a projecting longish tubercle in the centre; a fine longitudinal keel leading down from the ocelli to near the base of the antennæ; clypeus projecting, convex, clearly separated behind by a wide and deep furrow; its apex incised in the middle (but not broadly), the sides oblique. Behind the head is black, except at the orbits; the middle of the vertex to the antennæ (prolonged as a narrow stripe down the face to the clypeus) is also black; tips of the mandibles black. The prothorax broadly in front, the greater part of the mesopleuræ and sternum, the tubercles below the tegulæ, a large mark on the metapleuræ, two narrow lines on the mesonotum, the scutellum, the postscutellum, and two large longish marks on the sides of the metanotum, white. Base of the petiole broadly, its apex and the bases and apices of the other segments more narrowly, white. Anterior legs white behind, the femora lined with black above, the tibiæ and tarsi fuscous behind; middle coxæ white, with a large black mark behind, the femora and tibiæ black behind, white in front, the tarsi almost entirely black; hind coxæ black, white at the apex and with a white mark at the base behind, the femora entirely black, the tibiæ black, the basal half white in front and slightly so behind, the tarsi white, except at the base and apex.

3. **Lissonota erythropoda.**

Nigra; annulo antennarum, ore, facie, orbitis, pleuris, tegulis, lineis 2 mesonoti, scutello postscutelloque, albis; abdomine pedibusque rufis; alis hyalinis, stigmate testaceo. ♀.

Long. 12 millim.; terebra 10 millim.

Hab. Guatemala, Dueñas (*Champion*).

Very finely and closely punctured. Head whitish yellow, except behind (orbits excepted) and the centre of the vertex; structurally as in *L. leucozona*. Prothorax in front, the mesopleuræ (except at the sides and immediately beneath the wings), the tegulæ, the tubercles beneath them, the sternum, a large mark on the metapleura, two narrow lines on the mesonotum, the scutellum, the postscutellum, the metanotum laterally at the base and apex, and the abdominal segments narrowly at the apex, white. Metanotum laterally reddish; the transverse keel more distinct than in the other species of the genus, and a little more sharply upturned in the middle. Four anterior coxæ more or less yellowish; hind tarsi yellowish, black at the base and apex.

4. **Lissonota pulchra.**

Nigra; annulo antennarum, facie, ore, orbitis, prosterno, mesosterno, tegulis, macula mesonoti, scutello, postscutello maculaque metanoti, albis; pedibus rufis, tarsis posticis nigris, medio læte albis; alis hyalinis, stigmate griseo.

Long. 10 millim.

Hab. Mexico (*Sallé*).

Face finely punctured; white, except a broad black line from the antennæ to the base

of the clypeus; front depressed above the antennæ, a keel in the centre of the depression. Thorax opaque, very closely and finely punctured; the prosternum, the mesosternum, a squarish large mark above it, the tegulæ, the tubercle below them, a large mark in the centre of the mesonotum, the scutellum, a large mark on the metapleuræ, a transverse line across the apical third of the metanotum (prolonged upwards on each side and ending in an oblong dot), white. Abdomen black, opaque, finely punctured; the base of the petiole and of the remaining segments, the sides also of the three apical ones broadly, and the ventral surface, reddish; the apices of the segments yellow, the yellow bordered with red on the apical segment. The four anterior tarsi are fuscous; the hind pair black at the base and apex, the intermediate part white; the apices of the hind tibiæ, and the spurs, black; fore coxæ, and the base of the middle pair, yellow; hind coxæ closely punctured.

Differs from *L. erythropoda* in being longer; in having a mark (not two lines) on the mesonotum; in having only a small mark on the mesopleura; in having a transverse yellow line on the metanotum, &c.

5. **Lissonota leucopoda.** (Tab. XI. fig. 20.)

Nigra; facie, orbitis anticis, lineis pronoti, pleuris, sterno pedibusque, albis; mesonoto cum tegulis pleurisque supra, rufis; alis hyalinis. ♀ et ♂.

Long. 8·5 millim.; terebra 6 millim.

Hab. Panama, Bugaba (*Champion*).

Head broader than the thorax, shining, impunctate; white, except behind (orbits excepted) and at the middle of the vertex. Thorax shining, pilose (especially on the metathorax); mesonotum bearing clearly separated punctures; metathorax more closely and strongly punctured, and with two distinct transverse keels, in front of the keels almost impunctate. Abdomen finely and closely punctured. Prothorax black, except on the lower side; lower half of the mesopleuræ, and nearly the whole of the metapleuræ, white; upper half of the mesopleuræ red. Mesonotum red, except at its junction with the pronotum, where it is yellow; sides of the scutellum, and the postscutellum, yellow. Metanotum black. Apices of the abdominal segments white; sheaths of the ovipositor black, pilose. Antennæ nearly as long as the body, pilose. Apices of the hind tibiæ, and of the tarsi, black.

Mexicana Cr.

PHYTODIETUS.

Phytodietus, Gravenhorst, Ichn. Europ. ii. p. 929.

A not uncommon genus in the temperate regions of the globe, and probably of wide distribution. I have placed here the species which Cresson has described under *Lampronota* (=*Lissonota*): they certainly do not belong either to *Lampronota* (=*Cyllo-ceria*, Schiödte) or *Lissonota* (which name is sunk by American authors in favour of *Lampronota*, Curtis), as they all have pectinated claws.

1. **Phytodietus cressoni.**

Ferrugineus; flagello antennarum, metanoto pro parte, macula magna coxarum posticarum medioque abdominis segmentis 1^mo^ et 2^o^, nigris; alis hyalinis, stigmate sordide testaceo. ♀.
Long. 11 milllim.; terebra 9 millim.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Closely punctured, the apical segments of the abdomen very slightly; metanotum with a transverse keel. Orbits, the mandibles (except at the apex), and a narrow ring on the antennæ, yellow; centre of the mesonotum obscurely, the mesopleuræ in front, the metanotum (except a large space in the centre at the base), the first and second segments of the abdomen broadly in the middle, the two anterior coxæ broadly at the base, and the posterior coxæ entirely behind, black. The hind femora are more or less black above and beneath; tips of the tarsi black. Areolet oblique, triangular above, angled beneath where the recurrent nervure is received before the middle.

2. **Phytodietus guatemalensis.** (Tab. XI. fig. 21.)

Ferrugineus; flagello antennarum nigro, annulo albo; alis flavo-hyalinis, stigmate sordide testaceo. ♀.
Long. 13 millim.; terebra 11 millim.

Hab. GUATEMALA, San Gerónimo, Dueñas (*Champion*); PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Closely and finely punctured all over; clypeus with larger and more distinctly separated punctures; abdomen not so strongly punctured as the thorax, especially towards the apex. Tubercle below the antennæ large, narrower at the apex. Orbits more or less yellowish; mandibles yellowish, black at the tips. Scutellum narrower towards the apex, with distinct keels at the base; metanotum with a transverse keel near the apex. Areolet oblique, triangular above, not much angled on the lower side.

3. **Phytodietus gracilicornis.**

Phytodietus gracilicornis, Cresson, Proc. Acad. Phil. 1873, p. 411 (♂ ♀)[1].

Hab. MEXICO, Orizaba, Cordova[1] (*Sumichrast*).

4. **Phytodietus mexicanus.**

Phytodietus mexicanus, Cresson, Proc. Acad. Phil. 1873, p. 412 (♀)[1].

Hab. MEXICO, Cordova[1] (*Sumichrast*).

5. **Phytodietus orizabensis.**

Lampronota mexicana, Cresson, Proc. Acad. Phil. 1873, p. 407 (♂ ♀)[1].

Hab. MEXICO, Orizaba[1] (*Sumichrast*).

6. **Phytodietus aztecus.**

Lampronota azteca, Cresson, Proc. Acad. Phil. 1873, p. 408 (♀)[1].

Hab. MEXICO, Orizaba[1] (*Sumichrast*).

7. **Phytodietus bellus.**

Lampronota bella, Cresson, Proc. Acad. Phil. 1873, p. 408[1].

Hab. Mexico, Cordova[1] (*Sumichrast*).

8. **Phytodietus orbitalis.**

Lampronota orbitalis, Cresson, Proc. Acad. Phil. 1873, p. 408 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

9. **Phytodietus (?) jucunda.**

Lampronota (?) *jucunda*, Cresson, Proc. Acad. Phil. 1873, p. 409 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

AGATHILLA.

Agathilla, Westwood, Tijd. v. Ent. xxv. p. 23.

Judging from the figure and description, I conclude that this genus belongs to the "Pimplides," rather than to the "Ichneumones adsciti," among which it is placed by Westwood. The single described species is from Mexico.

1. **Agathilla fulvo-picta.**

Agathilla fulvo-picta, Westwood, Tijd. v. Ent. xxv. p. 24, t. *b*. figg. 1–7[1].

Hab. Mexico (*Coffin*[1]).

Subfam. *XORIDINÆ*.

LABENA.

Mesochorus, Brullé, Nat. Hist. Ins. Hymén. iv. p. 249 (nec Grav.).

Labena, Cresson, Proc. Ent. Soc. Phil. 1864, p. 399; Walsh, Trans. St. Louis Acad. Science, 1873, p. 162.

A well-marked genus, containing but few species, and only found in North America and Mexico.

1. **Labena gloriosa.**

Labena gloriosa, Cresson, Proc. Acad. Phil. 1873, p. 412 (♀)[1].

Hab. Mexico, Mirador[1] (*Dr. Sartorius*).

2. **Labena grallator.**

Cryptus grallator, Say, Bost. Journ. Nat. Hist. i. p. 236[1]; Leconte, Complete Writings of Thomas Say, ii. p. 692.

Labena grallator, Cresson, Proc. Ent. Soc. Phil. 1864, p. 400 (♂ ♀)[2]; Walsh, Trans. St. Louis Acad. Science, 1873, p. 162[3].

Mesochorus fuscipennis, Brullé, Hist. Nat. Ins. Hymén. iv. p. 250.

Hab. North America, United States [2 3], Indiana [1].—Mexico, Northern Sonora (*Morrison*).

This fine large species has been bred from hickory stems infested by the beetle *Cerasphorus cinctus*, Fabr.

Subfam. *TRYPHONINÆ.*

This division of Ichneumonidæ is of comparative rarity in Central America, only three species being known from south of Mexico. In the northern parts of Mexico they will, no doubt, be found to be much more numerously represented.

METOPIUS.

Metopius, Panzer, Krit. Revis. ii. p. 78; Cresson, Proc. Acad. Phil. 1873, p. 393.

A very distinct genus, of wide distribution in the New and Old Worlds, but apparently not containing many species.

1. **Metopius femoratus.** (Tab. XI. fig. 23.)

Metopius femoratus, Cresson, Proc. Acad. Phil. 1873, p. 393 (♂) [1].

Hab. Mexico, Orizaba (*Bilimek*), Cordova [1] (*Sumichrast*).

2. **Metopius scutifrons.**

Metopius scutifrons, Cresson, Proc. Acad. Phil. 1873, p. 393 (♂) [1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

EXOCHOIDES.

Exochoides, Cresson, Trans. Am. Ent. Soc. 1868, p. 37.

This genus is at present only known from Mexico. It differs from *Exochus* in having the face flat, the legs less robust, and the abdomen subpetiolate.

1. **Exochoides mexicana.**

Exochoides mexicana, Cresson, Trans. Am. Ent. Soc. 1868, p. 37 (♂) [1].

Hab. Mexico, Hacienda del Potrero, near Cordova [1] (*Sumichrast*).

2. **Exochoides concinna.**

Exochoides concinna, Cresson, Trans. Am. Ent. Soc. 1868, p. 37 (♂) [1].

Hab. Mexico, Hacienda del Potrero, near Cordova [1] (*Sumichrast*).

EXOCHUS.

Exochus, Gravenhorst, Ichn. Europ. ii. p. 328; Cresson, Proc. Acad. Phil. 1873, p. 38.

A genus apparently of no great extent, and chiefly known from the Palæarctic and Nearctic Regions.

A. *Areolet wanting.*

1. **Exochus stramineipes.** (Tab. XI. fig. 7.)

Niger, nitidus; ore, facie, orbitis, palpis, tegulis, linea pronoti, mesopleuralis medio pedibusque, stramineis; coxis, trochanteribus femorumque posticorum basi, tibiarum posticarum basi tarsisque posterioribus, nigris; alis fere hyalinis, nervis nigris. ♂.

Long. 8 millim.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Smooth, shining, almost impunctate, the abdomen at the apex sparsely pilose. Antennæ as long as the abdomen and metathorax together, moderately stout; the first joint large, somewhat pyriform, yellow on the lower side. Vertex raised in the centre, the ocelli projecting; orbits broadly yellow, except in the middle behind. Mesonotum flat, bearing shallow punctures; scutellum impunctate; the fovea at its base deep. Metanotum bearing two carinæ in the centre and one on either side at the edge; this latter bearing a short tubercle where the metanotum slopes down; there is another keel along the pleural region above the middle. Petiole depressed above at the basal half, the depression bordered by fine keels, the remaining segments without keels. Legs stout; hind coxæ, the femora (especially), and tibiæ, thickened. Wings obscure smoky; areolet wanting.

2. **Exochus puncticeps.**

Niger; facie, palpis, linea pronoti, apice scutelli, postscutello pedibusque, flavo-rufis; alis hyalinis, stigmate testaceo. ♂.

Long. 7 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ a little longer than the abdomen, brownish beneath, densely pilose; third joint about one fourth longer than those succeeding, the two basal joints subequal. Face broadly and roundly projecting, closely pilose, strongly punctured from the antennæ to the apex of the scutellum, which is shining and impunctate; vertex shining, depressed above the antennæ; the orbits are narrowly lined with yellow above the antennæ. Mesonotum closely punctured, scarcely shining; scutellum impunctate, its apex and the sides broadly to near the base, yellow; pleuræ and sternum shining, the pleuræ in front obscurely punctured. Metanotum opaque, aciculate, except the centre and apex; there are eight areæ; supramedian area longer than broad, the apex produced into an angle in the middle; metapleuræ shining, impunctate; the metanotum

bears longish, rather dense, hair. Abdomen closely punctured, pilose; petiole depressed in the centre at the base; two stout, slightly converging, keels run from the base to near the middle; genital organs projecting, fuscous. Legs stout; the femora and hind tibiæ thickened; the coxæ and tarsi of a lighter tint than the femora and tibiæ.

Obs. It is possible that what I have called "flavo-rufo" may be a pure yellow (which is nearly the colour of the line on the pronotum), the reddish tint being discoloration, perhaps caused by cyanide of potassium.

3. **Exochus tricarinatus.**

Exochus tricarinatus, Cresson, Trans. Am. Ent. Soc. 1868, p. 38 (♂); Proc. Acad. Phil. 1873, p. 392[1].

Hab. MEXICO, Hacienda del Potrero, near Cordova[1] (*Sumichrast*).

4. **Exochus pulchripes.**

Exochus pulchripes, Cresson, Trans. Am. Ent. Soc. 1868, p. 38 (♂)[1]; Proc. Acad. Phil. 1873, p. 393[2].

Hab. MEXICO, Hacienda del Potrero, near Cordova[1], Orizaba[2] (*Sumichrast*).

5. **Exochus melanocephalus.**

Rufo-testaceus, capite abdominisque apice nigris; facie oreque rufis; alis hyalinis, nervis nigris. ♂.
Long. 6 millim.

Hab. MEXICO, Northern Sonora (*Morrison*).

Antennæ moderately stout; blackish, testaceous at the basal fourth; basal joint of the scape cylindrical, stout, scarcely one half longer than thick; first joint of the flagellum nearly double the length of the fourth. Face finely punctured; vertex shining; a sharp keel runs down from the ocelli to the antennæ, the space on each side of it being slightly excavated. Thorax shining; metanotum slightly aciculate; two keels run down its sides; beyond what is enclosed by these two keels there are no areæ. Abdomen shining, impunctate, thickened towards the apex; the ventral surface pallid testaceous. Legs (especially the femora) stout, pallid testaceous at the base; the tarsi paler in tint than the tibiæ, their apices fuscous. Areolet angled on the lower side where the recurrent nervure is received beyond the middle.

B. *Areolet present.*

6. **Exochus cæruleiventris.**

Exochus cæruliventris, Cresson, Trans. Am. Ent. Soc. 1868, p. 38 (♂)[1]; Proc. Acad. Phil. 1873, p. 392[2].

Hab. MEXICO, Hacienda del Potrero, near Cordova[1], Orizaba[2] (*Sumichrast*).

BASSUS.

Bassus, Fabricius, Syst. Piez. p. 93.

This genus is numerously represented in the Palæarctic and, to a less extent, in the Nearctic Region. In our country it has only been met with in the mountains of North Mexico, where the fauna is of a more mixed nature than further south, *i. e.* there is a considerable mixture of northern species.

1. **Bassus frontalis.** (Tab. XI. fig. 8.)

Bassus frontalis, Cresson, Trans. Am. Ent. Soc. 1868, p. 111 (♀)[1].

Hab. NORTH AMERICA, United States[1].—MEXICO, Milpas 5900 feet (*Forrer*).

The Mexican specimen is a male, and it does not materially differ in coloration from the female.

MESOLEPTUS.

Mesoleptus, Gravenhorst, Ichn. Europ. ii. p. 3; Cresson, Trans. Am. Ent. Soc. ii. p. 33 (1868).

An extensive genus of wide distribution.

1. **Mesoleptus calidus.**

Mesoleptus calidus, Cresson, Trans. Am. Ent. Soc. 1868, p. 33 (♂)[1]; Proc. Acad. Phil. 1873, p. 390.

Hab. MEXICO, Hacienda del Potrero, near Cordova[1] (*Sumichrast*).

2. **Mesoleptus melleus.**

Mesoleptus melleus, Cresson, Trans. Am. Ent. Soc. 1868, p. 34 (♂)[1]; Proc. Acad. Phil. 1873, p. 390.

Hab. MEXICO, Hacienda del Potrero, near Cordova[1] (*Sumichrast*).

3. **Mesoleptus aztecus.**

Mesoleptus aztecus, Cresson, Proc. Acad. Phil. 1873, p. 390 (♂)[1].

Hab. MEXICO, Orizaba[1] (*Sumichrast*).

4. **Mesoleptus mexicanus.** (Tab. XI. fig. 22.)

Flavus; flagello antennarum, mesonoto (lineis 2 flavis exceptis) abdominisque apice late, nigris; alis flavo-hyalinis, stigmate testaceo. ♂.

Long. 15 millim.

Hab. MEXICO (*Sallé*).

Antennæ filiform, longer than the body. Face closely, the clypeus scarcely, punctured; face sharply projecting below the antennæ; tips of the mandibles, the head behind (except the orbits), and the vertex, black. Thorax closely punctured, the punctures running into striations on the pleuræ. Metanotum without any carinæ (except a transverse one at the apex), with an almost gradual slope from the base to

the apex; the sides there depressed. Abdomen closely punctured, scarcely so strongly as the thorax; there is an obscure black mark on the apex of the first segment; the second and third segments are black along the sides; the fourth at the apical half and the remaining segments black. The abdomen is long and slender, the first segment flattish above, the apical one nearly cylindrical; in the middle it is testaceous. Legs long, slender; the hinder pair fulvous, the anterior pair yellowish; tips of the tarsi blackish. Areolet large, the lateral nervures a little curved and united above; below it is but very slightly angled where the recurrent nervure is received not far from the base.

The eyes are large, and reach nearly to the base of the mandibles; the cheeks do not project much. The metanotum is fulvous; the yellow colour runs more or less into fulvous all over the body.

A specimen from Orizaba (*Bilimek*) has the abdomen black with the segments yellow at the base and apex, the metanotum blackish in the middle at the apex, and the whole body and legs of a much more decided fulvous tinge. It appears to be an aberration of *M. mexicanus*.

5. **Mesoleptus bardus.**

Mesoleptus bardus, Cresson, Trans. Am. Ent. Soc. 1868, p. 34 (♂)[1].

Hab. Mexico, Hacienda del Potrero, near Cordova [1] (*Sumichrast*).

6. **Mesoleptus imbecillis.**

Mesoleptus imbecillis, Cresson, Trans. Am. Ent. Soc. 1868, p. 34 (♂)[1].

Hab. Mexico, Hacienda del Potrero, near Cordova [1] (*Sumichrast*).

7. **Mesoleptus emaceratus.**

Mesoleptus emaceratus, Cresson, Trans. Am. Ent. Soc. 1868, p. 35 (♂)[1].

Hab. Mexico, Hacienda del Potrero, near Cordova [1] (*Sumichrast*).

8. **Mesoleptus decorosus.**

Mesoleptus decorosus, Cresson, Trans. Am. Ent. Soc. 1868, p. 35 (♂)[1].

Hab. Mexico, Hacienda del Potrero, near Cordova [1] (*Sumichrast*).

9. **Mesoleptus alpestris.** (Tab. XI. fig. 24.)

Niger; ore, palpis, facie, orbitis, linea pronoti, pleuris, sterno, lineis 2 mesonoti, scutello coxisque, flavis; pedibus fulvis; alis hyalinis, stigmate testaceo. ♂.
Long. 13 millim.

Hab. Mexico, Ciudad in Durango 8100 feet (*Forrer*).

Antennæ stoutish, the middle joints produced at the apices; in length as long as the body. Head closely punctured, projecting in the centre in front, the cheeks not

buccate; clypeus rounded at the apex, its foveæ deep. Thorax closely and finely punctured all over; metanotum without keels. Prosternum, the edge of the pronotum in front, a line above, the tegulæ, two narrow lines on the mesonotum reaching to the pronotum, the scutellum, the lower half of the mesopleuræ, the sternum, and a large, somewhat triangular, mark on the metapleuræ above the coxæ, yellow. Abdomen longish, cylindrical at the apex; black, the base and apex of the segments fulvous; closely punctured, the apex but slightly. Legs longish, moderately stout, the coxæ finely punctured. Areolet 5-angled; lateral nervures converging, but not uniting above; the recurrent nervure received slightly beyond the middle.

10. **Mesoleptus persimilis.** (Tab. XI. fig. 25.)

Hab. Mexico, Ciudad in Durango 8100 feet (*Forrer*).

Very similar to *M. alpestris*, but smaller; the wings of a much more decided yellowish hue, the areolet narrower, the lateral nervures united at the top; the yellow on the mesopleura narrower; there is only a narrow oblique line on the metapleura, the hind coxæ are entirely black, except at the apex, and an oval mark at the base on the outer side.

11. **Mesoleptus guatemalensis.**

Niger; ore, facie, orbitis, linea pronoti, tegulis, maculis 2 pleuralibus, scutello laterali maculaque metanoti, flavis; abdominis medio testaceo; pedibus flavis; coxis posticis nigris, femoribus tibiisque (basi excepta) posticis nigro-fuscis; alis flavo-hyalinis, apice fumato, stigmate testaceo. ♂.

Long. 13 millim.

Hab. Guatemala, Purula in Vera Paz (*Champion*).

Antennæ as long as the body; inclining to fuscous on the under side, especially towards the apex; densely covered with a blackish pile; third joint as long as the fourth and fifth together; the last joint as long as the preceding two together; there are forty-eight joints in all. Head punctured, covered with longish fuscous hair; face broadly projecting in the middle; clypeus also projecting, clearly separated, the apex rounded; ocelli placed on the top of the head, the front ocellus placed not much before the two posterior ones; immediately behind these latter the head bends in towards the front ocellus (the edges of this indentation have an indistinct border, and it does not reach to the bottom of the head); above the antennæ the front is deeply excavated, and (immediately above each antenna) a somewhat triangular plate-like tubercle proceeds from the eye, extending backwards to the back of the excavated part. Thorax densely pilose, closely punctured all over (except the mesopleuræ); a broad horizontal line on the side of the pronotum, a mark above this on the mesonotum, the tegulæ, the tubercle below them, a mark on the mesopleuræ (narrowed on the lower side behind), a smaller mark beneath the hind wings, the sides and the extreme apex of the scutellum,

the postscutellum, a small mark on either side of the metanotum above, and a large mark (dilated on either side at the apex along the transverse keel), yellow. Metathorax more strongly punctured than the mesothorax; the metanotum almost rugosely punctured, with an arcuate transverse keel at the apex; metathoracic spiracles oblique, oval. Abdomen densely pilose, the pile longest at the apex, which is compressed laterally; petiole of nearly equal width throughout, depressed in the centre above, with a somewhat triangular tubercle on the lower side at the basal third; the minute lateral tubercles placed immediately above this; spiracles round; first and second segments pale testaceous, the first broadly black in the middle, the second black along the sides above; third segment black along the sides; the apex of the fourth, and the remaining segments entirely, black; cerci testaceous. Legs pilose; middle coxæ blackish before and behind, the sides yellowish; tips of the tarsi fuscous. Areolet oblique, triangular, but slightly angled where the recurrent nervure is received towards the apical fourth; longly pedunculated.

12. **Mesoleptus (?) bucephalus.**

Mesoleptus (?) *bucephalus*, Cresson, Trans. Am. Ent. Soc. 1868, p. 36 (♂)[1].

Hab. Mexico, Hacienda del Potrero, near Cordova[1] (*Sumichrast*).

13. **Mesoleptus (?) anguina.**

Mesoleptus (?) *anguina*, Cresson, Proc. Acad. Phil. 1873, p. 391 (♀)[1].

Hab. Mexico, Orizaba[1] (*Sumichrast*).

MESOLEIUS.

Mesoleius, Holmgren, Sv. Ak. Handl. 1854, p. 62.

The species I have included in this genus agree better with the characters of *Mesoleius* than of *Tryphon*. They, however, are scarcely typical, and might be included in *Tryphon* if the metathoracic areæ were not completely obsolete, *Tryphon* having, at least, some of them present.

1. **Mesoleius costaricensis.**

Niger; annulo antennarum, clypeo, facie laterali, orbitis anticis, linea prothoracis, tegulis, scutello, postscutello, metanotique apice læte, flavis; pedibus testaceis; tibiis tarsisque flavis; basi coxarum, femoribus posticis supra tibiarumque posticarum dimidio apicali, nigris; alis fere fumatis, stigmate testaceo. ♂.
Long. 10 millim.

Hab. Costa Rica, Cache (*Rogers*).

Closely punctured all over, covered with close pale pubescence, which is longest on the pleuræ and breast. Antennæ covered with microscopic pile; third joint as long as the succeeding two together. Face scarcely projecting in the middle; the orbits in front, the face (except a black line down its centre, this black line being prolonged

along the top of the clypeus to the base of the mandibles), the clypeus, and the mandibles (except at the apex), black; labrum and palpi testaceous; clypeus slightly projecting, transverse at the apex. The pronotum in front, a mark on either side of the mesonotum in front (close to the pronotum), the scutellum, the postscutellum, the apical half of the metanotum, the tegulæ, and the tubercles beneath them, yellow. Abdomen not much longer than the head and thorax together; petiole considerably longer than the second segment (being nearly as long as the following two segments together), faintly punctured, black, the apex and sides yellow; the second, third, and fourth segments black, yellow at the apex; the apical segments obscure testaceous-yellow, more or less blackish. The anterior legs incline to yellowish, the four posterior femora have a more decided testaceous hue; hind coxæ marked with testaceous, running into fulvous and yellow, the base black. Areolet broad; the lateral nervures curved, united above; below, the recurrent nervure is received a little before the middle; stigma blackish at the top, testaceous on the lower side.

2. **Mesoleius zapotecus.**

Flavo-testaceus; vertice, medio pronoti, mesonoto, maculisque 2 metanoti, nigris; facie, annulo antennarum, orbitis tarsisque, flavis; alis fere hyalinis, stigmate testaceo. ♀.

Long. 11 millim.; terebra fere 1 millim.

Hab. Mexico (*Bilimek*).

Antennæ stout, nearly as long as the thorax and abdomen together; brownish-black above, the yellow ring broad; the scape yellowish, black above; the third joint more than double the length of the fourth. Head yellow (except a broad black band in the centre above the antennæ, extending posteriorly, and a smaller one below the antennæ, not reaching to the centre of the face), obsoletely punctured; the face projecting (but not largely) in the centre; the clypeus projecting, limited behind by a deep depression. Thorax yellow, the centre of the pronotum, a line proceeding from a little behind the tegulæ under the fore wings down the side of the suture and bounding the mesopleura in front, and the mesonotum (except two triangular yellow marks in front close to the pronotum), black; scutellum yellow; metanotum yellow, a black mark (dilated at the apex, and on each side at the base) and a smaller, more triangular, one at the apex in the middle; mesonotum opaque, finely punctured; metathorax more strongly punctured. Petiole broad, becoming gradually broader towards the apex, more than twice as long as broad; the sides furrowed (the lower side of the furrow bounded by a sharp keel); finely punctured; a broad transverse mark in the centre, the apex triangularly incised. The other segments are yellow, banded with broad fuscous-black bands at the base; these bands, however, becoming much narrower towards the apex, which is entirely yellow. The sheath of the ovipositor broad, testaceous, projecting. Wings hyaline, suffused with a smoky tinge; the nervures testaceous; areolet triangular above, the lower side projecting, angled. Legs longish; the tips of the tarsi fuscous.

3. **Mesoleius montezuma.** (Tab. XII. fig. 4.)

Niger; ore, facie et orbitis proparte, tegulis, scutello, pedibus anterioribus, abdominis segmentis basi ventreque, flavis; alis hyalinis, nervis nigris. ♂.

Long. 8 millim.

Hab. Mexico, Ciudad in Durango 8100 feet (*Forrer*).

Shining, impunctate, covered with a short, sparse pile. Antennæ long, slender, nearly one fourth longer than the body. The mouth, the mandibles (except at the apices, which are piceous), the inner orbits of the eyes broadly, a large mark in the centre of the face, the tegulæ, the scutellum, the postscutellum, the four anterior legs (except the bases of the coxæ and the tips of the tarsal joints), the greater part of the hind femora and tibiæ beneath, the tibial spurs at the base, the basal segments of the abdomen broadly, the other segments narrowly at the base, and the ventral surface, yellow, tinged slightly with fulvous. Hind legs longish (the tarsi considerably longer than the tibiæ), rather stout, the apical part of the claw bare. Head a little broader than the mesothorax; eyes large; the face not buccate, the clypeus slightly and broadly incised. Scutellum slightly convex. Metathorax without keels, having a gradual slope; the sides slightly aciculated and pilose. Abdomen not much longer than the head and thorax together, becoming gradually thicker towards the apex; petiole narrowed at the base, becoming gradually wider towards the apex. Wings a little shorter than the body, without an areolet.

TRYPHON.

Tryphon, Fallén, Specim. novam Hym. (1813); Holmgren, Sv. Ak. Handl. 1855, p. 185.

A very extensive genus. The species of this group are not clearly defined generically; and it is doubtful if many of the American species placed in *Tryphon* really belong to that genus as limited by Holmgren. The *Tryphon mexicanus* of Cresson certainly cannot, as it has the claws pectinate.

i. *Claws pectinate* [Polyblastus?].

1. **Tryphon mexicanus.**

Tryphon mexicanus, Cresson, Proc. Acad. Phil. 1873, p. 391 (♂)[1].

Hab. Mexico, Mirador[1] (*Dr. Sartorius*).

ii. *Claws simple.*

2. **Tryphon montezuma.** (Tab. XII. fig. 2.)

Niger; mandibulis, femoribus anterioribus abdomineque (basi excepta) rufis; palpis, tibiis tarsisque anterioribus, flavis; alis fuscis, nervis nigris. ♂.

Long. 7 millim.

Hab. Mexico, Ciudad in Durango 8100 feet (*Forrer*).

Antennæ nearly as long as the body, covered with microscopic pile; third joint more than one half longer than the fourth. Head covered with pale pubescence, aciculated, the face coarsely blistered; clypeus not separated, without foveæ; eyes longish, oblong, reaching to the base of the mandibles. Thorax finely punctured, covered with a close pile; scutellum raised, shining, the sides keeled. Metathorax with eight areæ; the upper median area longish, slightly dilated a little beyond the middle, narrowed towards the apex; covered with rather long grey hair; spiracles small, round. Petiole slightly thickened towards the apex, keeled along the sides, the tubercles longish; the postpetiole a little narrowed in the middle. Legs moderately stout; coxæ, the base of the hind trochanters, the hind femora (except the base and apex), and the hind tibiæ and tarsi (except at the base and apex), black. Areolet irregular, shortly petiolated, longer than broad; the nervures thick.

3. **Tryphon croceiventris.**

Tryphon croceiventris, Cresson, Trans. Am. Ent. Soc. 1868, p. 36 (♂)[1].

Hab. Mexico, Hacienda del Potrero, near Cordova [1] (*Sumichrast*).

4. **Tryphon (?) maculipennis.**

Tryphon (?) *maculipennis*, Cresson, Proc. Acad. Phil. 1873, p. 392 (♂ ♀)[1].

Hab. Mexico, Orizaba [1] (*Sumichrast*).

5. **Tryphon (?) laticinctus.**

Tryphon (?) *laticinctus*, Cresson, Trans. Am. Ent. Soc. 1868, p. 36 (♀)[1]; Proc. Acad. Phil. 1873, p. 392.

Hab. Mexico, Hacienda del Potrero, near Cordova [1] (*Sumichrast*).

POLYBLASTUS.

Polyblastus, Hartig, Wiegmann's Archiv, 1837, p. 155.

It is exceedingly doubtful if the species here described as a *Polyblastus* really belongs to that genus; the discovery of more specimens (I have only a mutilated male) will, I believe, show that it should be made the type of a new genus.

1. **Polyblastus (?) aztecus.** (Tab. XII. fig. 3, ♂.)

Niger; ore, facie, orbitis, linea pronoti, macula mesoscutelli, postscutello, maculisque 2 metanoti, flavis; abdomine rufo, basi nigro; pedibus anterioribus flavis, posticis nigris; femoribus subtus basique tibiarum læte, rufo-fulvis; alis hyalinis, nervis nigris. ♂.

Long. 10 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ covered (except the scape) with a microscopic pile; thick (the apex is now broken off, but, if my memory serves me correctly, it was much stouter than the base),

the joints produced at the base and apex on the lower side. Head broad; not developed much behind the eyes, which are large and margined; the front slightly hollowed above the antennæ, the face projecting beyond it, especially in the middle; clypeus almost transverse, clearly defined behind by a furrow; face strongly, the vertex and front more finely, punctured. Thorax shining, bearing clearly separated punctures; scutellum obsoletely, the pleuræ and metathorax strongly, punctured. Scutellum broader than long, becoming narrower towards the apex; flattish, but raised in the centre. The metanotum has eight areæ, and is hollowed in the centre; there are two large yellow marks on each side of the hinder median area, and a small one close to the stigma; the sides and apex covered with white hair. The petiole becomes gradually thickened towards the apex; the sides are keeled and the centre raised, the raised part bounded by a not very distinct furrow; the gastrocœli at the base of the second segment are curved, moderately wide and deep, and finely punctured. The abdominal segments are clearly separated; strongly punctured, and covered (especially laterally and at the apex) with white hair. Legs stout; hind coxæ large, thick, hollowed posteriorly. The four anterior legs are fulvous; the hind coxæ reddish, black at the base beneath; the trochanters are black at the base; the femora are mostly reddish beneath, and the hind tibiæ are red, broadly black at the apex. Wings short; the areolet oblique, the lateral nervures converging towards the top, the lower part produced into an angle which receives the recurrent nervure close to the middle.

Subfam. *OPHIONINÆ.*

Although this subfamily contains some of the most conspicuous species of Ichneumonidæ, yet the number of species hitherto found in our region is comparatively small.

THYREODON.

Thyreodon, Brullé, Hist. Nat. Ins. Hymén. iv. p. 150.

Species of this genus have been recorded from Asia, but I believe it will be found that *Thyreodon* is strictly a New World genus.

1. **Thyreodon niger.** (Tab. XII. fig. 12 *.)

Thyreodon niger, Cresson, Proc. Acad. Phil. 1873, p. 375 (♂ ♀)[1].

Hab. Mexico, Cordova[1] (*Sumichrast*); Guatemala, Cubilguitz in Vera Paz (*Champion*).

2. **Thyreodon erythrocera.** (Tab. XII. fig. 13.)

Hab. Mexico, Valladolid in Yucatan (*Gaumer*).

This species has the deep black body, wings, and reddish antennæ (black at the base

* The name of the genus is erroneously given as "*Thyredon*" on the Plate.

and apex) of *T. morio*, Fabr., and *T. gracilis*, Cresson, but it is probably distinct from either. The face is deeply punctured, the hollow over the antennæ bears some large, curved, transverse striations; the vertex is almost impunctate; the eyes are distinctly margined; the fovea at the side of the clypeus is longish and deep; the mandibles and palpi are covered with long brownish hair; the head is closely covered with black hair. The upper side of the thorax is opaque; the mesopleuræ impunctate and shining; the mesonotum is closely and distinctly punctured all over, the inner sides of the furrows rugose and raised; the scutellum is shining, and punctured, but not closely; the keels in front of the scutellum are coarsely striated, the hollows behind it being also strongly striated; the metathorax is opaque, depressed at the base, bulging out somewhat at the sides, hollowed in the centre behind, the hollow widest at the apex; the mesonotum is very closely and transversely, the pleuræ more strongly and longitudinally, striated.

Length 32 millim.

T. grandis, Cresson, differs from this species in having the mesothorax "very minutely and indistinctly punctured," the furrows on the mesonotum having a carina down the middle, and in the scutellum being densely punctured. In *T. erythrocera* the body is deep black, without either blue or green tints; the anterior femora inclining to piceous in tint. The specific distinctions between *T. grandis*, Cresson, *T. cyaneus*, Brullé, and *T. erythrocera* can only be satisfactorily made out by an examination of typical specimens.

3. **Thyreodon morosus.**

Thyreodon morosus, F. Smith, Descr. of New Species of Hymen. p. 230 (♀)[1].

Hab. Costa Rica, Cache (*Rogers*[1]).

This species is readily known from *T. erythrocera* &c. by the antennæ being whitish yellow, not fulvous; by the face being more strongly punctured, and with the two longitudinal furrows much more distinct; and by the scutellum being more gibbous and strongly punctured.

4. **Thyreodon maculipennis.**

Thyreodon maculipennis, Cresson, Proc. Acad. Phil. 1873, p. 375 (♂ ♀)[1].

Hab. Mexico, Orizaba, Cordova (*Sumichrast*[1]).

5. **Thyreodon laticinctus.** (Tab. XII. fig. 14.)

Thyreodon laticinctus, Cresson, Proc. Acad. Phil. 1873, p. 376 (♀)[1].
Thyreodon principalis, F. Smith, Descr. of New Species of Hymen. p. 230 (♀)[2].

Hab. Mexico, Orizaba (*Sumichrast*[1]); Guatemala, Zapote, Senahu (*Champion*); Costa Rica, Irazu, Cache (*Rogers*[2]).

Apparently a common and widely distributed species.

6. **Thyreodon ornatipennis.**

Thyreodon ornatipennis, Cresson, Proc. Acad. Phil. 1873, p. 376 (♀)[1].

Hab. MEXICO, Orizaba (*Sumichrast* [1]).

7. **Thyreodon rufithorax.** (Tab. XII. fig. 15, ♀.)

Ferrugineus; vertice, flagello antennarum, abdomine, pedibus posticis tarsisque intermediis, nigris; alis hyalinis, fusco fasciatis. ♀.

Long. 33 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Face rugose, the clypeus punctured; mesothorax and scutellum finely punctured, the mesopleuræ finely striated; metanotum with two irregular keels, united by cross ones, going down the centre; there is an equally strong keel down the side, united to the central keels by six strong transverse ones; metapleuræ with indistinct, rather widely separated, keels. Abdomen of the usual shape and with a steel-blue tinge. The base and apex of the wings are smoky; the apical three fourths of the radial cellule and a band along the basal nervure being deep black.

OPHION.

Ophion, Fabricius, Ent. Syst. Supp. p. 210.

A genus of wide distribution over the globe. The very uniform coloration of the species, and the slight structural variations which they show, render their identification very difficult. *Ophion* is divisible into two groups:—

1. *With horny points in the fore wings.*

Eniscopilus, Stephens, Ill. Brit. Ent. Mand. vii. p. 126 (1835).

In the same species of this group the inner (and smaller, when present) spot tends to become obsolete; and in some species of true *Ophion*, e. g. *O. curvinervis*, the spots might almost be said to be present, although transparent. I am not at all sure if the shape of the outer horny point can be depended upon as an aid to specific distinction; it seems to me to vary considerably.

A. *First cubital cellule with two horny points.*

a. *Stigma yellow or fulvous.*

1. **Ophion (Eniscopilus) mexicanus.** (Tab. XII. fig. 23.)

Ophion mexicanus, Cresson, Proc. Acad. Phil. 1873, p. 374 (♀)[1].

Hab. MEXICO, Cordova (*Sumichrast* [1]); GUATEMALA, San Gerónimo (*Champion*).

This species may be known from the following by the black antennæ and by the long

and narrow first discoidal cellule. The two horny points in the fore wings are distinct, as is also the line running from the triangular point. In the examples from Guatemala the apical half of the abdomen is fuscous.

2. **Ophion (Eniscopilus) concolor.** (Tab. XII. fig. 24.)

Ophion concolor, Cresson, Proc. Ent. Soc. Phil. 1865, p. 56[1].

Hab. Guatemala, San Gerónimo (*Champion*).—Antilles, Cuba [1].

I am not quite certain about the Guatemalan examples being conspecific with *O. concolor*; but on the whole they agree fairly well with the description. In two specimens the outer horny point is rather large, in another it is obsolete.

3. **Ophion (Eniscopilus) thoracicus.**

Ophion thoracicus, Cresson, Proc. Ent. Soc. Phil. 1865, p. 55[1]; Proc. Acad. Phil. 1873, p. 374[2].

Hab. Mexico, Cordova (*Sumichrast*[2]).—Antilles, Cuba [1].

4. **Ophion (Eniscopilus) flavo-scutellatus.** (*Ophion thoracicus*, Tab. XII. fig. 25.)

Ophion flavo-scutellatus, Brullé, Hist. Nat. Ins. Hymén. iv. p. 140[1].

Hab. Guatemala, Cerro Zunil 4000 to 5000 feet (*Champion*); Costa Rica, Irazu 6000 to 7000 feet (*Rogers*).

This insect usually has a broad fuscous band on the metanotum; sometimes, however, the fuscous colour is almost obliterated. It varies in size about 3 millim. The usual form of the outer horny point is rather long and conical at either end; sometimes irregular at the ends; and in one specimen it is very small. A well-marked feature of this species is the clearly-defined keel down the centre of the metanotum.

5. **Ophion (Eniscopilus) fuscicornis.**

Hab. Guatemala, San Gerónimo (*Champion*).

Similar in coloration to *O. flavo-scutellatus*, except that the mesonotum is marked with dark fulvous, not fuscous; differing otherwise in being smaller, in there being a distinct longish tubercle below the antennæ, in the metanotum being smooth and impunctate and with the transverse keel rather indistinct, and the antennæ dark fuscous, almost black. The head and pleuræ are yellowish; the metanotum behind the transverse keel is scarcely wrinkled.

6. **Ophion (Eniscopilus) flavus.** (Tab. XII. fig. 21.)

Ichneumon flavus, Fabr. Ent. Syst. ii. p. 179.

Ophion flavus, Fabr. Ent. Syst. ii. Supp. p. 236; Cresson, Proc. Ent. Soc. Phil. 1865, p. 57[1]; Proc. Acad. Phil. 1873, p. p. 374[2].

Hab. MEXICO, Cordova (*Sumichrast* [2]); NICARAGUA, Chontales (*Janson*).—ANTILLES, Cuba [1].

b. *Stigma black.*

7. **Ophion (Eniscopilus) monticola.** (Tab. XII. fig. 28.)

Luteus; orbitis facieque flavis; antennis, vertice abdominisque segmentis 3°–8^um^, nigris; alis hyalinis, nervis stigmateque nigris. ♀.

Long. 22–23 millim.

Hab. GUATEMALA, Las Mercedes 3000 feet, San Isidro 1600 feet (*Champion*).

Antennæ longer than the body, closely pilose. Head impunctate. Mesonotum tinged with black in the centre, shining, impunctate. Scutellum longish, narrowed towards the apex, the sides keeled, the back irregularly longitudinally striated. Metanotum with a transverse keel towards the basal half, behind which it is smooth; in front of it coarsely reticulated and bearing in the centre keels, which are straight at the base and then diverge towards the sides. The two basal segments of the abdomen are subequal; the first becoming gradually thickened towards the apex.

8. **Ophion (Eniscopilus) maculipennis.** (Tab. XII. fig. 29.)

Flavus, maculis 3 mesonoti, sternoque nigris; alis hyalinis, fascia substigmatali fusca. ♀.

Long. 18 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ longer than the body, yellow, fuscous towards the apex. Head impunctate, shining. Mesonotum finely and closely punctured. Scutellum more strongly punctured, strongly keeled down the sides. Metanotum behind the transverse line finely punctured; in front of it coarsely transversely rugose; mesopleuræ closely punctured. The pro-, meso-, and metasternums are black; the black on the mesosternum extends halfway up the mesopleuræ, and is continued in the middle as an oblique band to the hind wings. There is a black mark on the underside of the middle coxæ, a larger one on the hinder coxæ, and the apical half of the petiole is more or less black; the third and following segments incline to fuscous above. The stigma is black, except at the base and apex, where it is yellow; the costa is yellow; the other nervures black; the anterior horny point is distinct, about one half longer than broad, and obliquely truncated at the apex. The legs are clear pallid yellow.

A distinct and well-marked species.

B. *First cubital cellule with only one horny point.*

9. **Ophion (Eniscopilus) guatemalensis.** (Tab. XII. fig. 22.)

Pallide flavus, alis hyalinis, stigmate pallide flavo. ♀.
Long. 18 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

In its unicolorous body this species agrees with *O. concolor*, but it is much smaller, and the colour is more diluted in tint. Otherwise it differs in the metanotum being much less strongly wrinkled, while there is no keel down its middle; the scutellum is, if anything, more gibbous, not so much narrowed behind, scarcely keeled at the sides, and not punctured, but faintly striated at the apex; the inner discoidal cellule is not so much dilated at the apical half (see figures), and in the first cubital cellule only the pear-shaped horny point is present, it being also broader and shorter. *O. flavus* may be known from *O. guatemalensis* by the deeper fulvous tint of the body; by the middle of the vertex being black; the apex of the abdomen fuscous or black; by the mesonotum being punctured, the metanotum much more strongly wrinkled; while the form of the horny point in the fore wings is different, it being much more strongly pointed at the apex.

2. *No horny points in the fore wings* (Ophion, *sensu str.*).

A. *Inner discoidal cellule elongated, more than three times longer than wide; first recurrent nervure without a branch.*

10. **Ophion curvinervis.** (Tab. XII. fig. 19.)

Luteus; capite, pleuris scutelloque, flavis; alis hyalinis, stigmate luteo; antennis nigro-brunneis. ♀.
Long. 29–31 millim.

Hab. GUATEMALA, Las Mercedes 3000 feet, Senahu (*Champion*).

Antennæ as long as, if not longer than, the body; black, the flagellum more or less brownish on the lower side, the scape sometimes luteous beneath. Head shining, obscurely punctured, not much projecting in the middle; clypeal foveæ deep, longish. Thorax covered with close pale pubescence. Mesonotum very minutely punctured, the pleuræ finely longitudinally striated. Scutellum carinate along the sides. Metanotum with one transverse keel near the base; the base behind it finely rugose; the rest of the surface finely rugose, and bearing arcuate keels. Metapleuræ finely rugose. Petiole shining, glabrous, slightly hollowed in the centre above at the base; postpetiole clearly separated from, and distinctly thicker than, the petiole, densely covered with a white pubescence; the petiole itself is narrowed at the apex; together they are nearly as long as the second segment, which is dilated at the apex. The ~~transverse~~ radial nervure is curved upwards in the middle on the basal division, the apical portion having a

gradual curve from the base to the apex, the extreme apex curved upwards; the angle formed at the apex of the first cubital cellule shorter on the upper than on the lower side.

11. **Ophion chiriquensis.** (Tab. XII. fig. 20.)

Luteus, capite, scutello pleurisque, flavis; alis hyalinis, stigmate luteo. ♀.
Long. 23 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Smaller than *O. curvinervis*, and identical with it in sculpture (including the form of the metathorax), and in coloration, except that the antennæ are entirely luteous; differing from it otherwise in its smaller size, in the second abdominal segment being stouter and not so much compressed laterally compared to the first; in the basal division of the radial nervure not being curved upwards, and in the upper angles of the apex of the first cubital cellule being longer than the lower.

B. *Inner discoidal cellule not much longer than high; scutellum not clearly keeled.*

a. *Inner discoidal cellule angled at the inner upper margin; the recurrent nervure emitting a branch; stigma luteous.*

12. **Ophion flavo-orbitalis.** (Tab. XII. fig. 16.)

Luteus, orbitis scutelloque flavis; alis hyalinis, stigmate luteo. ♀.
Long. 21–22 millim.

Hab. MEXICO, Cordova (*Höge*); PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Face broadly projecting, finely punctured. Thorax finely punctured; scutellum with the sides carinate; metanotum aciculate, with two sharp transverse keels, the space between them hollowed; a longitudinal keel on either side of these, and two keels run down the middle from the posterior transverse one, forming a longish area. First abdominal segment dilated at the apex, the dilation gradual from the middle; the sides keeled; second segment thicker, and distinctly shorter than the first.

13. **Ophion ancyloneura.** (Tab. XII. fig. 17.)

Flavus; antennis, abdomine, femoribus tibiisque, luteis; alis hyalinis, stigmate testaceo. ♀.
Long. 17 millim.

Hab. GUATEMALA, Capetillo (*Champion*).

Antennæ a little longer than the body, pilose; third joint shorter than the fourth and fifth together. Head closely punctured; clypeal foveæ large, deep, longer than broad; face broadly projecting in the middle; a longish tubercle below the antennæ; tips of the mandibles piceous-black. Thorax almost impunctate, shining; mesonotum with

three obscure fuscous stripes, the sutures very shallow; metanotum with two distinct transverse keels, united in the centre by two longitudinal ones, which form a longish area; from the apical transverse keel run some not very clearly defined keels to the apex (except the central two, which form an area, narrower towards the apex, in front of the above-mentioned area between the two transverse keels). Petiole inclining to yellowish, indistinctly keeled; postpetiole thicker than, and clearly defined from, the petiole, luteous, and finely and closely punctured. The other segments are densely pilose, the apical one more darkly coloured. Smaller than *O. flavo-orbitalis*; the head and thorax almost entirely yellow; the third joint of the antennæ longer; the first abdominal segment longer and narrower; the postpetiole longer in proportion to the petiole; the second segment contracted before the middle (in addition to the contraction at the base); the first discoidal cellule distinctly angled in the middle above, the bulla received quite close to the middle, the projecting branch reaching nearly halfway across.

b. *Inner discoidal cellule not angled; the recurrent nervure not emitting a branch; stigma black.*

14. **Ophion melanostigma.** (Tab. XII. fig. 18.)

Luteus, orbitis thoraceque flavis; antennis nigris; alis hyalinis, stigmate nervisque nigris. ♂.
Long. 23 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Head strongly punctured; a longish, clearly defined tubercle below the antennæ; antennal regions projecting, separated from the eyes by an oblique depression, which extends near to the inner side of each antenna; tips of the mandibles piceous-black. Antennæ longer than the body, densely pilose; third joint longer than the fourth and fifth together; the apical joints brownish. Thorax pilose, shining, impunctate; metanotum without keels. First discoidal cellule rounded at the upper inner corner, and without any branch; bulla received a little beyond the middle.

NOTOTRACHYS.

Trachynotus, Gravenhorst, Ichn. Europ. iii. p. 715 (1829) (nomen præoc.).
Nototrachys, Marshall, Trans. Ent. Soc. 1872, pp. 50 & 63.

A genus containing a few species, found in Europe and America.

1. **Nototrachys fuscatus.**

Trachynotus fuscatus, Cresson, Proc. Ent. Soc. Phil. 1865, p. 50 (♂ ♀) [1].
Nototrachys fuscatus, Cresson, Proc. Acad. Phil. 1873, p. 375 [2].

Hab. Mexico, Orizaba, Cordova (*Sumichrast* [2]).—Antilles, Cuba [1].

OPHIOPTERUS.

Ophiopterus, Brullé, Hist. Nat. Ins. Hymén. iv. p. 153 (1846).

A genus exclusively American, and containing few species.

1. **Ophiopterus fuscipes.**

Niger; facie, ore, orbitis, linea pronoti, tegulis, scutello abdominisque basi, flavis; pedibus fuscis, anticis pallidis; alis hyalinis, nervis nigris. ♀.
Long. 12 millim.

Hab. Mexico, Orizaba (*Bilimek*).

Densely covered with a silvery-white pubescence, densest on the pleuræ. Head finely punctured; antennæ short, not much longer than the head and thorax together, the scape pale yellow beneath. Pronotum obliquely, the mesonotum transversely and very strongly, striated, the striations widely separated; a shining impunctate space below the hind wings on the mesopleuræ; the rest strongly longitudinally striated, running at the edges into reticulations; scutellum shining, nearly impunctate; metathorax coarsely reticulated, and having a gradual slope to the apex. Abdomen shining, impunctate, covered with a pale close pile; black, the sides from the third segment obscure rufous; sheath of the ovipositor black. Legs in greater part fuscous, covered with a pale pile; the femora inclining to rufous on the lower side; the fore legs almost entirely, and the middle pair in front, pallid testaceous.

2. **Ophiopterus niger.**

Niger; alis fere fuscis. ♂.
Long. 16 millim.

Hab. Mexico, Hurchihuitle (*Bilimek*).

Head semiopaque, covered with a depressed pile; a longitudinal keel running down from the ocelli, and from it short striations proceed on either side; thorax finely punctured, a smooth, shining, impunctate space beneath the wings; pronotum at the sides obliquely striated; mesopleuræ at the edges longitudinally striated; mesonotum in front of the scutellum reticulated; metathorax coarsely reticulated. Abdomen three times the length of the thorax, shining, impunctate; the three basal segments cylindrical, narrow, the second segment the longest.

3. **Ophiopterus ferrugineus.**

Ophiopterus ferrugineus, Cresson, Proc. Acad. Phil. 1873, p. 380 (♀)[1].

Hab. Mexico, Orizaba (*Sumichrast*[1]).

4. **Ophiopterus striatifrons.**

Niger; ore, orbitis late, tegulis, coxis anterioribus, abdominisque basi, flavis, pedibus rufis; alis brevibus, hyalinis, nervis nigris. ♀ et ♂.
Long. 9–10 millim.

Hab. MEXICO, Ciudad in Durango (*Forrer*).

Antennæ about half the length of the abdomen, microscopically pilose; fuscous towards the base of the flagellum, the basal joint of the scape yellow on the underside. Head black; the mouth, the mandibles, the palpi, the orbits (broadly on the inner, narrowly on the outer, side), and the face (except a triangular black mark), yellow; face and vertex finely punctured; the front transversely, and the head behind at the sides longitudinally and strongly, striated; an indistinct keel runs down from the ocelli, and another from each antenna down the face. Thorax black; a broad line on each side of the mesonotum in front close to the pronotum, the tegulæ, and the scutellum in the centre, yellow; mesonotum strongly transversely striated in front, punctured in the middle, aciculated behind; prothorax obliquely striated at the sides, except in the middle, which is shining and impunctate; pronotum roughly transversely striated; mesopleura (except below the wings) and sternum rugose; scutellum punctured, the lateral keels stout; metathorax coarsely reticulated. Abdomen twice the length of the head and thorax united; the greater part of the basal half yellow, segments 4 and 5 rufous. Legs reddish; the four anterior coxæ and trochanters yellow; the hind coxæ and trochanters black, yellow at their junction; the base of the hind femora and the apices of the tibiæ and tarsi black. In most of the specimens the hind femora and tibiæ incline to fuscous or black, perhaps owing to discoloration. The wings are not half the length of the abdomen.

AGATHOPHIONA.

Agathophiona, Westwood, Tijd. voor Ent. xxv. p. 19 (1882).

Agathophiona has the neuration of *Ophion*, but differs from that genus in the form of the abdomen (which is much thicker and not so much compressed), and also in the greatly elongated labium.

Only one species is known.

1. **Agathophiona fulvicornis.** (Tab. XII. fig. 11.)

Agathophiona fulvicornis, Westw. loc. cit. p. 20, t. 4. figg. 5–13[1].

Hab. MEXICO, San Angel (*Coffin*[1]), Chapultepec (*Bilimek*).

HETEROPELMA.

Heteropelma, Wesmael, Bull. Acad. Brux. xvi. p. 120 (1849).

The only Central-American species which can be fairly regarded as a *Heteropelma*

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differs from the typical forms in having the recurrent nervure interstitial; but as our insect agrees in other respects, I think we must provisionally regard it as belonging to Wesmael's genus, which contains but few known species.

1. **Heteropelma sonorensis.** (Tab. XII. fig. 30.)

Niger; facie, orbitis, scutello, pedibus 4 anterioribus, pedibus posticis pro parte tegulisque, flavis; antennis rufis. ♀.
Long. 17 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ not much longer than the head and thorax united, stout, 33-jointed, covered with a depressed pile; the third joint not much shorter than the three following ones united. Head covered with longish white hair, strongly punctured, coarsely rugosely striated below the ocelli. Thorax covered with long white hair, which is especially long on the sides and breast, strongly punctured all over; metathorax rugose, reticulated in the middle and at the sides behind, where there are two not very distinct keels; the keels in front of the scutellum are acute and curved, and they are prolonged forwards along the tegulæ; scutellum raised, broader than long, narrowed behind. Abdomen about twice the length of the thorax; the first segment cylindrical, a little longer than the second, the latter dilated towards the apex; the first two segments, and the others on the top and the lower edge of the sides, are ferruginous, stained with black; there is a long black line on the second and on the fourth and fifth segments; the sides from the third segment, the ventral surface, and the sheaths of the ovipositor are yellow. The four anterior legs are entirely bright yellow; the posterior legs have the coxæ black; the basal joint of the trochanter, the femora, the apical third of the metatarsus, and the other tarsal joints dark rufous; the apical joint of the trochanters, the basal two thirds of the tibiæ, and the basal two thirds of the metatarsus, yellow; the apical third of the tibiæ, and a spot on the apex of the metatarsus, black. Wings smoky, with a violet tinge, the costa and stigma testaceous; the recurrent nervure is interstitial.

EXOCHILUM.

Exochilum, Wesmael, Bull. Acad. Brux. xvi. p. 121 (1849).

A genus containing but few species, and not yet found in America south of Mexico. It is also represented in Europe.

1. **Exochilum mundum.**

Ophion mundus, Say, Bost. Journ. Nat. Hist. i. p. 239 (♂)[1]; Lec. Complete Writings of Thomas Say, ii. p. 695.
Exochilum mundum, Cresson, Proc. Acad. Phil. 1873, p. 375[2].
Campoplex flavipes, Brullé, Hist. Nat. Ins. Hymén. iv. p. 170.

Hab. North America, United States[1].—Mexico, Cordova[2].

RETANISIA.

Head as broad as the mesonotum, about one half broader than long. Clypeus almost transverse at the apex, but with the sides rounded; labrum small, rounded. Eyes not incised on the inner side. Parapsidal furrows deep and wide, reaching nearly to the scutellar fovea, which is wide and deep. Scutellum longer than broad, not much elevated, narrowed towards the apex, which is rounded; the sides are keeled. Metathorax gradually sloping to the apex, longish, with more or less distinct areæ. Abdomen not very much longer than the head and thorax united, becoming gradually dilated to the fifth segment. Hind legs very long; the coxæ longer than the trochanters, the tibiæ nearly as long as the coxæ, trochanters, and femora united; the tarsi a little shorter than the tibiæ; the hind tibiæ have two short, thick spurs, the anterior pair a longer and curved one. The metatarsus is scarcely twice the length of the next joint; and the basal joint of the anterior tarsi is curved at the base.

In this genus the first cubital cellule receives both the recurrent nervures, and therefore agrees with *Thyreodon*, *Ophion*, *Nototrachys*, *Ophiopterus*, and *Agathophiona*. From *Thyreodon* it may be known by the abdomen not being strongly compressed laterally, the much longer legs and antennæ, the eyes entire, and the claws not pectinated; from *Nototrachys* by the long antennæ and the shining mesonotum; from *Ophion* by the abdomen not being compressed, the eyes entire, and the non-pectinated claws; from *Ophiopterus* by the very long antennæ and legs and the dilated abdomen; and from *Agathophiona* by the normal length of the labium, the long antennæ, the much longer legs, and the much shorter, more dilated and thickened abdomen; and from all five by the very deep parapsidal furrows.

The antennæ in the male (the only sex known) are longer than the body; the joints contracted in the middle, dilated at the base and apex; the third joint about one fourth longer than the succeeding ones; towards the apex the joints become very slightly narrowed.

1. **Retanisia facialis.** (Tab. XII. fig. 10.)

Nigra; scapo antennarum subtus, facie, ore, orbitis, pedibus anterioribus pro parte apiceque tarsorum posticorum, flavis; alis hyalinis, apice fumatis, nervis nigris. ♂.

Long. fere 15 millim.

Hab. Guatemala, Purula (*Champion*).

Head strongly punctured; a triangular projection below the antennæ, its centre almost carinated, the face transversely striated on either side of it; below the antennæ, the orbits broadly behind, the palpi, the clypeus (except at the extreme apex), and the labium, yellow. Thorax strongly punctured, shining; the scutellum scarcely so strongly punctured as the mesonotum; metanotum with seven areæ; the sides more or less reticulated. Abdomen shining, impunctate, the ventral surface in the middle obscure yellow. The

anterior legs in front and the tarsi are entirely yellow; the middle pair have the coxæ, the greater part of the trochanters, the femora (except at the base), and the apices of the tarsi, yellow; the apical four joints of the hind tarsi are also yellow. The head and thorax are covered with a close fuscous pile.

ANOMALON.

Anomalon, Jurine, Nouv. Méthode de classer les Hymén. et les Diptères, p. 114 (1807); Gravenhorst, Ichn. Europ. iii. p. 627.

1. **Anomalon mexicanum.**

Anomalon mexicanum, Cresson, Proc. Acad. Phil. 1873, p. 376 (♀)[1].

Hab. Mexico, Orizaba (*Sumichrast*)[1].

2. **Anomalon vitticolle.**

Anomalon vitticolle, Cresson, Proc. Acad. Phil. 1873, p. 377 (♀)[1].

Hab. Mexico, Orizaba (*Sumichrast*)[1].

3. **Anomalon magum.**

Anomalon magum, Cresson, Proc. Acad. Phil. 1873, p. 377 (♂ ♀)[1].

Hab. Mexico, Cordova[1] (*Sumichrast*).

4. **Anomalon peritum.**

Anomalon peritum, Cresson, Proc. Acad. Phil. 1873, p. 377 (♀)[1].

Hab. Mexico, Mirador[1] (*Dr. Sartorius*).

5. **Anomalon residuum.**

Anomalon residuum, Cresson, Proc. Acad. Phil. 1873, p. 378 (♀)[1].

Hab. Mexico, Orizaba (*Sumichrast*)[1].

6. **Anomalon scelerosum.**

Anomalon scelerosum, Cresson, Proc. Acad. Phil. 1873, p. 378 (♂ ♀)[1].

Hab. Mexico, Orizaba (*Sumichrast*)[1].

7. **Anomalon guatemalenum.** (Tab. XII. fig. 26.)

Ferrugineum; antennis nigris, tarsis flavis; alis fere fumatis. ♀.
Long. 23 millim.

Hab. Guatemala, Purula (*Champion*).

Antennæ thin, filiform, pilose, inclining to brownish on the lower side; about three fourths the length of the body. Head rugose, covered closely with a whitish pubescence.

Thorax similarly pubescent; mesonotum finely punctured; propleura obliquely, the mesonotum longitudinally, striated; scutellum rugose; metanotum coarsely reticulated; metapleuræ very coarsely rugose. First abdominal segment narrow, the apex dilated; second segment of nearly equal breadth throughout on the upperside, but dilated downwards at the apex, considerably longer than the basal segment, and black above; the apical segments darker. Coxæ punctured, covered with long glistening white hair; femora glabrous; tibiæ covered with a dark and close, the tarsi with a lighter, pile; anterior legs lighter in colour than the posterior ones, which latter have the tips of the tarsi and of the tibiæ inclining to blackish. Wings slightly smoky, the apex much darker; stigma black above, testaceous on the lower side; first recurrent nervure received a little below the middle; discoidal cellule more than twice the width at the apex than at the base.

8. **Anomalon fumipenne.**

Anomalon fumipenne, Cresson, Proc. Acad. Phil. 1873, p. 379 (♀)[1].

Hab. Mexico, Orizaba (*Sumichrast*)[1].

9. **Anomalon agnatum.**

Anomalon agnatum, Cresson, Proc. Acad. Phil. 1873, p. 379 (♂)[1].

Hab. Mexico, Mirador[1] (*Dr. Sartorius*).

10. **Anomalon (?) elegans.**

Anomalon (?) *elegans,* Cresson, Proc. Acad. Phil. 1873, p. 379 (♀)[1].

Hab. Mexico, Orizaba (*Sumichrast*)[1].

11. **Anomalon quadrilineatum.**

Flavum; antennis, vertice, lineis 4 thoracis, abdomine supra, dimidio apicali tibiarum posticarum tarsisque posticis, nigris; abdomine pedibusque rufo-testaceis; alis hyalinis, nervis nigris.
Long. 16 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Antennæ about three fourths of the length of the body, slender, more thickened towards the base; scape yellowish beneath. Head thickish, impunctate, the vertex aciculate. Thorax shining; mesonotum with some scattered punctures; metanotum with a broad and deep furrow down its centre; three (the two lateral not reaching to the base of the lobes) broad lines on the mesonotum, the suture of the metathorax, and a line down the metanotum, black. Abdomen longish, strongly compressed; the first segment clear yellow at the base; ovipositor as long as the hind tibiæ. Hind femora with a keel on the underside, terminating in an indistinct tooth before the apex (very much as in *Eiphosoma*); hind tibiæ entirely black behind.

EIPHOSOMA.

Eiphosoma, Cresson, Proc. Ent. Soc. Phil. iv. p. 52, fig. 5 (1865); Proc. Acad. Phil. 1873, p. 380.

Cresson described this genus for the reception of four species from Cuba, later on adding two others from Mexico. *Eiphosoma* is allied to *Cremastus* and *Angitia*, Holmgren.

1. **Eiphosoma mexicanum.** (*Ephiosoma mexicanum*, Tab. XII. fig. 31.)

Eiphosoma mexicana, Cresson, Proc. Acad. Phil. 1873, p. 380 (♀)[1].

Hab. MEXICO, Cordova (*Sumichrast*)[1]; GUATEMALA, San Gerónimo (*Champion*).

Apparently a not uncommon species. The extent of black on the legs, thorax, and abdomen varies. What appears to be a specimen of this species from Presidio, Mexico (*Forrer*), is only one half of the usual size.

2. **Eiphosoma vitticolle.**

Eiphosoma vitticollis, Cresson, Proc. Ent. Soc. Phil. 1865, p. 53 (♂ ♀)[1]; Proc. Acad. Phil. 1873, p. 381[2].

Hab. MEXICO, Valladolid in Yucatan (*Gaumer*), Orizaba, Cordova (*Sumichrast*[2], *Bilimek*).—ANTILLES, Cuba[1].

As in the preceding species, the amount of black varies.

3. **Eiphosoma aztecum.**

Eiphosoma azteca, Cresson, Proc. Acad. Phil. 1873, p. 381 (♂ ♀)[1].

Hab. MEXICO, Orizaba, Cordova[1] (*Sumichrast*).

Allied to the Cuban *E. nigrovittatum*.

PANISCUS.

Paniscus, Schrank, Fauna Boica, ii. p. 311, nota (1802).

A genus extensively distributed over the globe, but not containing many species.

1. **Paniscus geminatus.** (Tab. XIII. fig. 5.)

? *Ophion chloris*, Oliv. Enc. Méth., Ins. viii. p. 509.

Ophion geminatus, Say, Contrib. Macl. Lyc. i. p. 76[1]; Leconte, Complete Writings of Thomas Say, i. p. 379.

Paniscus rufus, Brullé, Hist. Nat. Ins. Hymén. iv. p. 155[2].

Paniscus geminatus, Norton, Proc. Ent. Soc. Phil. i. p. 364 (1863)[3]; Cresson, Proc. Acad. Phil. 1873, p. 382[4].

Hab. North America, United States [1] [3].—Mexico, Orizaba, Cordova (*Sumichrast* [4]); Guatemala, Totonicapam 8500 to 10,000 feet, Capetillo, San Gerónimo, Sinanja, Senahu (*Champion*); Nicaragua, Chontales (*Belt*); Costa Rica, Irazu, Cache (*Rogers*); Panama, Bugaba 800 to 1500 feet, Volcan de Chiriqui 2500 to 4000 feet.—South America [2]; West Indies [2].

A common and widely distributed species. *P. geminatus* varies greatly in size; the flagellum of the antennæ varies in colour from black to rufous; the amount of yellow on the head varies also, and the apical segments of the abdomen are sometimes fuscous.

2. Paniscus tinctipennis.

Fuscus, testaceo variegatus; capite flavo; pedibus pallide testaceis, coxis posterioribus femoribusque posticis fuscis; alis fumatis, stigmate testaceo. ♀.
Long. 15 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Antennæ a little longer than the body, microscopically pilose; the flagellum dark fuscous, the scape testaceous. Head yellow, the occiput dark fuscous; the ocellar region black; the face obscurely punctured, projecting in the middle; mandibles testaceous, the tips black; palpi yellow. Thorax dark fuscous; a line on the pronotum, the sutures of the mesonotum, a mark below the tegulæ, the sides of the scutellum, and the lower part of the metapleura, pale testaceous. Metathorax closely transversely striated. Abdomen fuscous, the base of the first three segments and their ventral surface pale testaceous. Wings with a fuscous tinge; areolet minute, not oblique; the recurrent nervure interstitial.

Differs from *P. geminatus* in the fuscous colour of the body, in the wings having a decided smoky tinge, in the expansions on each side of the metathorax being much more distinct, in the abdomen being broader and not so compressed, and in the petiole being thicker and shorter compared to the second segment.

3. Paniscus melanostigma.

Rufo-testaceus, mesonoto nigro; capite flavo; flagello antennarum fusco; alis hyalinis, stigmate nigro. ♀.
Long. 15 millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Face closely punctured; metathorax closely transversely striated. Areolet moderately large, straight, the recurrent nervure received a little beyond the middle; there is no branch on the cubital nervure.

Easily known from its allies by the black stigma and nervures. The petiole is longer compared to the second segment (the relative length of the two being as in *P. geminatus*) than in *P. tinctipennis*.

CAMPOPLEX.

Campoplex, Gravenhorst, Ichn. Europ. iii. p. 453 (1829).

1. **Campoplex opimus.**

Campoplex opimus, Cresson, Proc. Acad. Phil. 1873, p. 382 (♀)[1].

Hab. MEXICO, Cordova[1] (*Sumichrast*).

2. **Campoplex tepanecus.** (Tab. XIII. fig. 1.)

Campoplex tepanecus, Cresson, Proc. Acad. Phil. 1873, p. 382 (♂ ♀)[1]

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn*), Orizaba (*Sumichrast*[1]), Cuernavaca (*Bilimek*); GUATEMALA, San Gerónimo (*Champion*).

A variable species in size and coloration.

3. **Campoplex guatemalensis.**

Rufo-fuscus; capite, antennis, coxis, trochanteribus, femoribus tarsisque posticis, nigris; tibiis tarsisque anterioribus albis.

Long. 15–16 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Surface covered with a dense silvery-white pubescence, which is especially long on the face, the sides of the scutellum, the pleuræ, and the metanotum; closely punctured, running into striations in the oblique hollow on the mesopleuræ and on the metanotum, which latter has an arcuated transverse keel at the base, behind which the punctuation is finer; the centre of the metanotum hollowed; scutellum closely punctured. Petiole shining, impunctate; postpetiole aciculate and black above; the other segments also black above, the second and third finely and closely punctured; the ventral surface is honey-yellow, the sides rufous, wanting the fuscous tint noticeable on the thorax. The legs are pilose, the tibiæ (especially the hind pair) being covered with a very stiff pile; the extreme tips of the front tarsi, and the apical halves of the middle tarsi, black; the four hind coxæ more or less rufous. Wings hyaline, with a faint fuscous tint; areolet triangular, pedunculated. Antennæ three fourths of the length of the body; scape rufous. Palpi and mandibles yellow.

A larger and more robust species than *C. tepanecus*, the wings longer, the metanotum much more deeply excavated, the postpetiole black and strongly aciculated.

4. **Campoplex lacivius.**

Campoplex lacivius, Cresson, Proc. Acad. Phil. 1873, p. 383 (♂)[1].

Hab. MEXICO, Cordova[1] (*Sumichrast*).

5. **Campoplex veræpacis.** (Tab. XIII. fig. 3.)

Niger; mandibulis, palpis, apice coxarum anticarum, trochanteribus, femoribus, tibiis tarsisque anterioribus, tibiisque posticis (apice excepto), flavis; abdomine rufo; alis hyalinis, fere fuscis.
Long. 15 millim.

Hab. MEXICO (*Bilimek*); GUATEMALA, Senahu (*Champion*).

The face, the sides of the scutellum, the pleuræ, and the metanotum covered with a rather long, the rest of the body with a shorter and more sparse, silvery-white pubescence. Antennæ about two thirds the length of the body; stout. Head and thorax closely punctured, the central depression on the mesopleura striated. Scutellum with the punctures not so closely packed together and larger; the punctures on the metanotum running into striations. Centre of the metanotum hollowed, widest at the apex. Petiole shining, the postpetiole and the remaining segments black above. Areolet triangular, sessile.

The male has the four anterior coxæ yellow, the hind tibiæ lined with black on the lower side, otherwise as in the female.

6. **Campoplex aurifer.**

Campoplex aurifer, Cresson, Proc. Acad. Phil. 1873, p. 383 (♂ ♀)[1].

Hab. MEXICO, Orizaba (*Sumichrast* [1]).

7. **Campoplex flavipennis.**

Campoplex flavipennis, Cresson, Proc. Acad. Phil. 1873, p. 383 (♀)[1].
Campoplex flavipennis, var. *terminalis*, Cresson, loc. cit. p. 383 (♀).

Hab. MEXICO, Orizaba (*Sumichrast* [1]).

8. **Campoplex melliventris.**

Campoplex melliventris, Cresson, Proc. Acad. Phil. 1873, p. 383 (♀)[1].

Hab. MEXICO, Cordova (*Sumichrast* [1]).

9. **Campoplex lectus.**

Campoplex lectus, Cresson, Proc. Acad. Phil. 1873, p. 384 (♂)[1].

Hab. MEXICO, Cordova (*Sumichrast* [1]).

10. **Campoplex mexicanus.** (Tab. XIII. fig. 4.)

Niger; abdomine pedibusque posticis rufis; pedibus anterioribus, mandibulis, palpis tegulisque, flavis; alis hyalinis, nervis nigris, stigmate fusco. ♀.
Long. 10 millim.

Hab. MEXICO, Northern Sonora (*Morrison*).

Antennæ stout, inclining to fuscous on the underside towards the apex; scape yellowish beneath. Head densely covered with long silvery-white pubescence. Thorax

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closely punctured, covered with silvery-white pubescence, which is longest on the pleuræ, the sides of the scutellum, and the metathorax; a deep furrow runs down the centre of the metanotum. Abdomen more than double the length of the head and thorax together, pilose; the two basal segments black above; sheath of the ovipositor pilose. Wings short; areolet with the lateral nervures scarcely meeting at the top, not pedunculated. Anterior coxæ black at the base; the posterior coxæ and the hind trochanters entirely black.

11. **Campoplex gnarus.**

Campoplex gnarus, Cresson, Proc. Acad. Phil. 1873, p. 384 (♂)[1].

Hab. Mexico, Orizaba (*Sumichrast* [1]).

12. **Campoplex calcaratus.**

Campoplex calcaratus, Cresson, Proc. Acad. Phil. 1873, p. 384 (♂ ♀)[1].

Hab. Mexico, Orizaba (*Sumichrast* [1]).

13. **Campoplex macilentus.**

Campoplex macilentus, Cresson, Proc. Acad. Phil. 1873, p. 384 (♀)[1].

Hab. Mexico, Cordova (*Sumichrast* [1]).

14. **Campoplex divisus.** (Tab. XIII. fig. 2.)

Campoplex divisus, Cresson, Proc. Acad. Phil. 1873, p. 385 (♂)[1].

Hab. Mexico, Orizaba (*Sumichrast* [1]).

15. **Campoplex maceratus.**

Campoplex maceratus, Cresson, Proc. Acad. Phil. 1873, p. 385 (♂)[1].

Hab. Mexico, Cordova (*Sumichrast* [1]).

16. **Campoplex nefastus.**

Campoplex nefastus, Cresson, Proc. Acad. Phil. 1873, p. 385 (♂)[1].

Hab. Mexico, Cordova (*Sumichrast* [1]).

17. **Campoplex legalis.**

Campoplex legalis, Cresson, Proc. Acad. Phil. 1873, p. 385 (♂)[1].

Hab. Mexico, Mirador (*Dr. Sartorius* [1]).

18. **Campoplex inæqualipes.**

Campoplex inæqualipes, Cresson, Proc. Acad. Phil. 1873, p. 386 (♀)[1].

Hab. Mexico, Orizaba (*Sumichrast* [1]).

LIMNERIA.

Limneria, Holmgren, Sv. Ak. Handl. 1858, p. 51; Œfv. 1858, p. 326; Act. Ac. R. Suec. Consp. xv. (1860).

1. **Limneria albispina.** (Tab. XI. fig. 13.)

Nigra; pedibus rufis, mandibulis, palpis, trochanteribus anterioribus, tibiis posticis tarsorumque basi, albis; tarsis posticis (basi excepta) tibiarumque apice nigris; alis hyalinis, stigmate nigro. ♀.
Long. 9 millim.; terebra 3 millim.

Hab. MEXICO, Ciudad in Durango 8100 feet (*Forrer*).

Antennæ moderately stout, microscopically pilose, as long as the abdomen. Head and mesonotum semiopaque, finely punctured; the middle of the mesopleuræ shining and impunctate; the rest longitudinally striated; metathorax finely and closely punctured, covered with longish silvery-white hair; the punctures in the middle of the metanotum almost forming striations. Petiole longish, narrow at the base, the apex clavate, shining, aciculate; the other abdominal segments coarsely aciculate at the base, pilose at the apex and sides. Abdomen somewhat laterally compressed on the lower side at the apex. Hind tibiæ with a narrow black ring towards the base; tibial spurs longish and white; nearly the basal half of the metatarsus and the extreme base of the other segments also white.

2. **Limneria alpestris.**

Nigra; pedibus rufis, basi coxarum anterioribus tarsisque posticis nigris, basi tarsorum posticorum albo; alis fere fuscis, nervis nigris. ♀.
Long. 8 millim.; terebra fere 2 millim.

Hab. MEXICO, Ciudad in Durango 8100 feet (*Forrer*).

Head closely pilose; metapleura sparsely clothed with longish white hairs; metathorax not so strongly punctured as in *L. albispina*, and, as in that species, there are no clearly defined areæ, only a transverse keel round the top and one down each side. Areolet subpetiolate above, triangular, slightly angled beneath where the recurrent nervure is received near the apex. Similar in form and clothing to *L. albispina*, but with the body more slenderly built; the abdomen longer and narrower compared to the thorax, and not punctured, only faintly aciculate; the petiole longer and narrower, narrow at the base, clavate at the apex, and longer than the second segment; the ovipositor shorter, being not much longer than the three apical segments; there is no white on the hind femora; and the wings are fuscous tinted, the stigma livid testaceous.

3. **Limneria sonorensis.** (Tab. XIII. fig. 6.)

Hab. MEXICO, Northern Sonora (*Morrison*).

Similar in coloration to *L. albispina*, except that the abdomen is broadly reddish-

brown beneath and at the apex of the second and third segments, the latter only broadly so at the sides; differing otherwise from that species in the shorter, more clavate abdomen and distinct metathoracic areæ. Antennæ stout, nearly as long as the abdomen, densely covered with short pile; the joints not clearly separated; scape large, shining. Face densely covered with longish silvery-white hair, the front and vertex finely punctured, opaque; mandibles and palpi yellow. Thorax opaque, the mesonotum minutely, the pleuræ more strongly, punctured; metathorax as strongly punctured as the pleuræ; the centre of the metanotum transversely striated; the two median areæ clearly defined; the lateral area indistinct. Abdomen opaque, finely punctured; the basal part of the petiole shining, impunctate; the apical portion suddenly dilated, opaque. Areolet subpetiolate, triangular, the recurrent nervure received in the middle.

4. **Limneria montezuma.**

Nigra; pedibus anterioribus sordide rufis, mandibulis palpisque flavis; alis hyalinis, nervis nigris, tegulis flavis. ♀.

Long. fere 8 millim.; terebra 1 millim.

Hab. Mexico (*Bilimek*).

Head densely covered with silvery-white pubescence; the top more sparingly pubescent and closely and somewhat coarsely punctured. Thorax opaque, closely punctured, covered with silvery-white pubescence, which is longest on the metathorax. Scutellum more shining than the mesonotum, finely punctured; margined round the apex. Metathorax with four areæ—one basal, occupying the entire base; two lateral, large; and a median, rounded at the base and becoming dilated before the middle. Metathoracic spiracles small, oval, placed near the base. Abdomen opaque, the sides and apex pilose; the basal half of the petiole shining, impunctate, the apical part finely punctured, opaque; second segment obscure yellow beneath; the other segments obscure yellow at their junction. Areolet 4-angled, scarcely pedunculated, oblique, longish. Legs densely covered with white pubescence; the four anterior ones obscure testaceous red, the middle pair inclining to fuscous behind; the coxæ black.

5. **Limneria (?) insolens.**

Limneria (?) *insolens,* Cresson, Proc. Acad. Phil. 1873, p. 386 (♂ ♀)[1].

Hab. Mexico, Orizaba, Cordova (*Sumichrast* [1]).

NONNUS.

Nonnus, Cresson, Proc. Acad. Phil. xxv. p. 386 (1873).

Two species were placed in this genus by Cresson; both inhabit Central America.

1. **Nonnus atratus.** (*Nonus niger*, Tab. XII. fig. 8.)

Nonnus atratus, Cresson, Proc. Acad. Phil. 1873, p. 387 (♀)[1].

Hab. MEXICO, Cordova (*Sumichrast* [1]); PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

2. **Nonnus antennatus.** (*Nonus antennatus*, Tab. XII. fig. 9.)

Nonnus antennatus, Cresson, Proc. Acad. Phil. 1873, p. 387 (♂ ♀)[1].

Hab. MEXICO, Orizaba (*Sumichrast* [1]).

GROTEA.

Grotea, Cresson, Proc. Ent. Soc. Phil. iii. p. 397, figg. 1 *a–c* (1864).

This genus was founded by Cresson upon *G. anguina*, from New Jersey and New York, a second species from Mexico being subsequently added by the same author; I am now able to add yet another from Mexico. Cresson (*op. cit.* p. 399) states that both sexes of *G. anguina* were reared from a raspberry-stem, together with a small species of *Crabro*.

1. **Grotea mexicana.**

Grotea mexicana, Cresson, Proc. Acad. Phil. 1873, p. 413 (♂ ♀)[1].

Hab. MEXICO, Orizaba (*Sumichrast* [1]).

2. **Grotea fulva.** (Tab. XII. fig. 27.)

Fulva, flavo variegata; apice antennarum lineisque 2 metathoracis nigris, lineis 3 mesonoti fuscis; alis hyalinis, fascia nigra, nervis nigris. ♀.

Long. 20 millim.; terebra 9 millim.

Hab. MEXICO, Presidio (*Forrer*).

Smooth, shining, impunctate. Head and thorax for the greater part yellow. Antennæ stout, almost thickened towards the apex, nearly glabrous. There is a small elongated area at the base of the metanotum in the centre, and from it a line runs to join a longitudinal keel on the inner side of the spiracles; on the outer side of the spiracles is another keel. The spiracles on the metathorax are long, curved, narrow. There is a black line running on the top of the petiole to beyond the middle, and another, but shorter one, on each side. The four front legs are almost entirely yellow. The fascia in the fore wings is small, and situated at the apex, partly in the radial and partly in the cubital cellule.

MESOCHORUS.

Mesochorus, Gravenhorst, Ichn. Europ. ii. p. 960 (1829).

1. **Mesochorus totanacus.**

Mesochorus totanacus, Cresson, Proc. Acad. Phil. 1873, p. 388 (♀)[1].

Hab. Mexico, Orizaba (*Sumichrast* [1]).

PRISTOMERUS.

Pristomerus, Curtis, Brit. Ent. p. 624 (1836).

1. **Pristomerus mexicanus.**

Pristomerus mexicanus, Cresson, Proc. Acad. Phil. 1873, p. 388 (♂)[1].

Hab. Mexico, Mirador (*Dr. Sartorius* [1]).

EXETASTES.

Exetastes, Gravenhorst, Ichn. Europ. iii. p. 395 (1829).

1. **Exetastes vittatipes.**

Exetastes vittatipes, Cresson, Proc. Acad. Phil. 1873, p. 389 (♀)[1].

Hab. Mexico, Cordova (*Sumichrast* [1]).

2. **Exetastes tarsalis.**

Exetastes tarsalis, Cresson, Proc. Acad. Phil. 1873, p. 389 (♂ ♀)[1].

Hab. Mexico, Cordova (*Sumichrast* [1]).

3. **Exetastes mexicanus.**

Exetastes mexicanus, Cresson, Proc. Acad. Phil. 1873, p. 389 (♂)[1].

Hab. Mexico, Mirador (*Dr. Sartorius* [1]).

SCOLOBATES.

Scolobates, Gravenhorst, Ichn. Europ. iii. p. 357 (1829).

1. **Scolobates (?) varicornis.** (Tab. XII. fig. 5.)

Niger; capite, antennis, mesonoto antice, pedibus anterioribus tarsisque posticis, fulvis; alis fuscis, fascia medio fere hyalina. ♂.

Long. 10–11 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Antennæ stout, longer than the body; microscopically pilose; fulvous, inclining to yellow beyond the middle, the apical eight joints black; the third joint nearly as long as the two succeeding united. Head shining, impunctate, and nearly glabrous on the top; the face projecting, but not largely nor sharply above, bearing shallow punc-

tures, and covered with longish fulvous hair; the antennæ originating from tubercles; the clypeus depressed round the base; eyes oblong, comparatively small; the space behind the eyes considerably developed. Thorax shining, impunctate; mesonotal sutures obsolete; scutellum moderately raised, longer than broad, the sides not keeled; metathorax depressed at the extreme base, and having a gradual slope to the apex; the spiracles round, and situated a little before the middle. Abdomen a little longer than the head and thorax united, shining, impunctate, covered with a dense fuscous pile; becoming gradually widened to the apex of the fourth segment, thence gradually narrowed; the apices of the second and following segments and the ventral surface testaceous. Legs stout, the tarsi densely pilose; hind tibiæ curved inwardly, the spurs short and thick; metatarsus narrowed and bent at the extreme base, scarcely so long as the three following joints united; the second tarsal joint longer than the third, the latter twice the length of the fourth, the fifth joint (with the claws) a little longer than the second. There is no areolet; the recurrent nervure is interstitial.

In this insect the neuration of the wings is as in *Heteropelma sonorensis* and *Retanisia*; the much thicker hind tibiæ and tarsi (the tarsi, moreover, being longer than the tibiæ), the non-lobed mesonotum, and the smaller eyes (which do not reach so near to the clypeus) sufficiently distinguish it from the latter. The short antennæ, the large eyes (reaching quite near to the mouth), the long compressed abdomen, the broader scutellum, and the more slender tarsi (of which the metatarsus is also longer), separate *Heteropelma* from *S. varicornis*.

BANCHUS.

Banchus, Fabricius, Ent. Syst. Suppl. p. 209 (1798).

1. **Banchus mexicanus.** (Tab. XII. fig. 6.)

Fulvus, flavo variegatus; femoribus posticis nigris; alis fulvis, stigmate flavo. ♂.
Long. 15 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ not much longer than the head and thorax united, involute, stout, microscopically pilose. Head much broader than long, not much developed behind the eyes; the latter curve round on the top, and reach nearly to the base of the mandibles; an oval depression over each antenna; the face slightly projecting in the middle; the clypeus transverse at the apex, the sides oblique; the mandibles without teeth; the face and clypeus punctured; yellow, the depressions over the antennæ and the space between them black; the centre of the face and the base fulvous; the tips of the mandibles black, the palpi yellow. Thorax rather strongly and closely punctured, fulvous; the scutellum not so strongly punctured and ending in a sharp nipple-like point; scutellum (except the point and a line down from it), a spot in front of the mesonotum, a quadrate mark beneath the tegulæ, a broad mark on the mesopleuræ in front, and

the middle of the metanotum, yellow; the base of the metanotum, two oblique marks on the pleuræ, a line in front of the scutellum, and the sternum more or less, black. Abdomen yellow, the petiole (except at the apex), the basal half of the second segment and the other segments at the base, fulvous. The anterior legs fulvous, inclining to yellow in front. The middle legs fulvous; the coxæ in front, the tibiæ and the tarsi in front at the base, yellow; the femora have a black line behind. The hind coxæ and femora are black, except that the former have a dark fulvous mark behind and the latter are fulvous at the base and apex; the hind tibiæ are yellow, broadly black at the apex; the hind tarsi yellow, fulvous at the tips of the joints. Areolet large, the lateral nervures a little curved, not united at the top; the recurrent nervure is received in the basal third.

Fam. BRACONIDÆ.

The species of this extensive family inhabiting the Central and Southern regions of America are hardly known, and even our knowledge of the species found in North America is comparatively slight. The larger species only are known, the smaller and more obscure forms not having been collected at all. Under these circumstances it is impossible to say if the Braconidæ are as numerously represented in the Neotropical Region as they are in the Palæarctic.

Division CYCLOSTOMI.

This division contains those species which have a semicircular opening between the clypeus and the mandibles. It has been divided by Förster (Verh. pr. Rhein. xix.) into numerous subfamilies, but these are based on such slight characters that I have in some cases not adopted them. Moreover to do so would necessitate, to carry out his scheme consistently, the creation of some new divisions; and this I am not at present prepared to do. The "Cyclostomi" contains some of the largest species in the family, and is apparently very numerously represented in the Neotropical Region.

Subfam. *BRACONINÆ*.

BRACON.

Bracon, Fabricius, Syst. Piez. p. 102 (1804); Wesmael, Nouv. Mém. Acad. Brux. 1838, p. 7; Förster, Verh. pr. Rhein. xix. p. 235.

Bracon is not so numerously represented in our region as the closely allied genus *Iphiaulax*, which is chiefly distinguished from it by having several transverse, usually striated, furrows on the abdomen, that immediately behind the petiole being bifurcated on either side. This latter character is the best mark of distinction, and it would be difficult without it to say how the two are to be separated, for in some species the

posterior transverse furrows tend to become obsolete. *Myosoma*, Brullé, I have not adopted, as it is only distinguished by having the legs more pilose than is usual with the majority of the species of *Bracon*; in this respect there is so much variation that it is impossible to draw a hard-and-fast line.

I have divided the genus into groups. The chief points of distinction are to be found in the form of the head and abdomen. In the abdomen the form of the petiole shows a good deal of variation. The shape of the eyes and of the frontal region is likewise of importance. The alar neuration does not exhibit much variation. I have, in most cases, not given the number of joints in the antennæ: in the first place, they are very difficult to count, owing to their being so closely soldered together; and, secondly, because the tips are broken off in nearly all the specimens before me.

i. *Abdomen not punctured nor striated.*

The group of B. COMPUNCTOR.

Antennæ as long as the body, the depression between them not deep. Abdomen with a stout keel down the centre of the second segment; the depression on the sides rather narrow, not reaching to the apex; suturiform articulation nearly transverse, not reaching to the sides, dilated at the apex and also narrowly backwards; a furrow on the third segment. Ovipositor longer than the body, which is black, except at the base of the abdomen. Wings black, with a hyaline band at the stigma.

I am not sure whether this species should not be treated as an *Iphiaulax*, but the suturiform articulation is not bifurcated at the sides, although there is a furrow on the third segment.

1. Bracon compunctor. (Tab. XIII. fig. 11.)

Niger; abdominis basi læte rufa; alis fuliginosis, fascia medio hyalina; terebra quam corpus multo longiore. Long. 12–13 millim.; terebra 15–16 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ longer than the body; 70–74 jointed, the basal joint nearly as long as the third and fourth together, these latter being subequal. Head covered with longish black hair; face almost transverse, scarcely punctured; clypeus not projecting and without any depression at its base; front depressed in the middle (the depression reaching to the ocelli), and with a narrow furrow down its centre. Thorax shining, sparsely covered with black hair. The central part of the petiole wide, becoming slightly enlarged towards the apex, the furrows broad and deep; a narrower furrow a little below the side, which is sharply ridged. Abdomen longer than the head and

thorax together, if anything, narrower than the mesothorax, and of nearly equal width throughout. The recurrent nervure is interstitial; the second cubital cellule is shorter than the third; the cubitus is almost straight at the first cubital cellule.

The group of B. FRUSTRATUS.

Eyes large, oval, reaching nearly to the apex of the clypeus, converging a little near the top. Head broadly developed behind the eyes; front broadly, but not deeply, depressed. Antennæ stout, microscopically pilose, not longer than the body, originating from stout tubercles, so that there is a deep depression between them, the depression extending nearly to the middle of the face. Mesosternal furrow obsolete. Petiole semiperpendicular, deeply furrowed along the sides. A wide furrow down either side of the second segment. Suturiform articulation deeply sinuated.

A. *Thorax black.*

* *Central portion of the petiole of nearly equal breadth throughout, or at least not narrowed towards the apex.*

2. **Bracon frustratus.** (Tab. XIII. fig. 8.)

Niger, nitidus; abdominis segmentis 1°–4ᵐ rufis; alis fuliginosis.

Long. 11–12 millim.; terebra 16–17 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ scarcely so long as the body, tapering towards the apex, the scape curved beneath, produced into a club at the apex. Face shining in the middle below the antennæ, the sides and mouth-region rugose, but not strongly so; vertex and occiput shining, impunctate; an oval depression above each antenna, separated by a ridge, which is not so high as the outer side of the depression and has a fine keel down its centre. Palpi inclining to fuscous, especially at the apex; pilose. Clypeus projecting at the apex, and having a semicircular ridge near the base. The centre of the petiole is raised considerably above the sides, especially at the apex, but excavated in the centre at the base; the lateral furrow very wide at the apex. The furrow down the side of the second segment is wide and deep, and runs almost from the furrow on the petiole, but is still separated from it. The semicircular suturiform articulation is narrower than this furrow and terminates a very little beyond it, *i. e.* it does not reach the side of the segment. The abdomen is not longer than the head and thorax together; broader than the mesothorax, widening to the end of the third segment, whence it gradually (but slightly) narrows to the apex. The cubitus is sharply elbowed near its origin; the first cubital cellule is about one third longer than broad on the lower side; the second cubital cellule is, on the upperside, about equal in length to the third, on the lower side clearly longer than it.

** *Central portion of the petiole broad at the base, narrowed towards the apex.*

1 (2). Palpi and legs black; the face over the clypeus roughly crenulated; the cheeks strongly punctured . . . . . *gracilescens.*
2 (1). Palpi and fore tibiæ and tarsi white; the face over the clypeus and the cheeks not very strongly punctured . . . . . *albipalpis.*

3. **Bracon albipalpis.** (Tab. XIII. fig. 7.)

Niger; abdomine rufo, apice nigro; palpis, trochanteribus, basi femorum, tibiis tarsisque anterioribus, albis; alis nigris. ♂.
Long. 10·5 millim.

Hab. PANAMA, Bugaba (*Champion*).

Head large, cubital, strongly developed behind the eyes, broader than the mesothorax; smooth, shining, the sides of the face closely rugose; clypeus scarcely projecting, a narrow, sharp, semicircular carina at its base; the depression in front broad, reaching to the hinder ocelli, without a distinct ridge in the centre, the depression between (and below) the antennæ wide and deep. Thorax shining, impunctate. The raised central part of the petiole has straight sides and is deeply depressed at the base, the depression extending to the middle; the lateral furrow is deep and wide, and originates a little before the middle; the furrow down the side of the second abdominal segment deep; the suturiform articulation is wide and deep, its bend in the middle somewhat sharp, not forming a semicircle. Abdomen longer than the head and thorax together, bulging out in the centre, where it is distinctly broader than the mesothorax; the last segment forms a membranous projection, incised in the middle, over the last ventral one.

4. **Bracon gracilescens.** (Tab. XIII. fig. 9.)

Niger, nitidus; abdominis segmentis 1°–4ᵐ rufis, terebra quam corpus fere longiore; alis fuliginosis. ♀.
Long. 10 millim.; terebra fere 11 millim.

Hab. NICARAGUA, Chontales (*Janson*).

Similar in coloration and sculpture to *B. frustratus*, but much narrower and somewhat smaller; the clypeus is not so projecting, and there is no semicircular ridge at its base; the depression above the antennæ is not so deep, nor is it divided in two by a sharp and distinct ridge; the middle lobe of the mesonotum is not so sharply separated and raised above the lateral one; the abdomen is longer, and distinctly longer than the head and thorax together; the ovipositor is shorter; and the second cubital cellule is longer.

B. *Thorax red; the lateral furrows on the second abdominal segment not so deep nor distinct.*

5. **Bracon bugabensis.** (Tab. XIII. fig. 10.)

Luteus; antennis, capite, prosterno, abdominis apice pedibusque, nigris; alis fere hyalinis, fascia medio apiceque fumatis. ♀.

Long. 10 millim.; terebra 9·5 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ as long as the body; the third joint straight, about one fourth longer than the next. Face aciculated; clypeus almost transverse at the apex, not projecting much, a longish depression above it on either side; vertex depressed above the antennæ, the ocelli placed at the end of the depression and slightly raised. Thorax flat above; the scutellum scarcely raised, its sides at the apex depressed and distinctly separated; a broad and deep oblique furrow on the mesopleura. Petiole uniformly raised in the centre; the edge of the raised part with a distinct border; the side depressed below it and with a broad furrow. Abdomen with a triangular field (bounded by a deep furrow) in the centre, and an oblique furrow on either side, of the second segment; a deep furrow along the sides; apical segment with longish hair. Legs densely covered with greyish hair; apical joint of the trochanters piceous; four anterior knees testaceous; four anterior tarsi whitish, except the apical joint; spurs testaceous. The cloud on the fore wings extends across from the first cubital cellule, becoming narrower as the opposite side of the wing is reached; the apical cloud commences a little beyond the second transverse cubital nervure; the hind wings are smoky, with a fainter band before the apex.

The group of B. DISTINGUENDUS.

Second abdominal segment not furrowed at the sides, and without a keel down the centre; suturiform articulation straight or but slightly waved.

Differs from the group of *B. frustratus* only in the second segment not being furrowed laterally, and in the suturiform articulation not being so acutely bent.

1 (14). Thorax for the greater part, or entirely, black.
2 (7). Face roughly reticulated or punctured; the cheeks keeled.
3 (4). Abdomen red, black at the apex . . . . . *distinguendus.*
4 (3). Abdomen black, red laterally at the base.
5 (6). Ovipositor as long as the thorax and abdomen together; wings semihyaline towards the apex . . . . . *apicipennis.*
6 (5). Ovipositor scarcely longer than the abdomen; wings uniformly fuscous; sides of the abdomen broadly white . . . . . *heterodoxus.*
7 (2). Face not roughly punctured or reticulated; abdomen for the greater part red.
8 (9). Middle lobe of the mesothorax red . . . . . *morrisoni.*

9 (8). Mesothorax entirely black.
10 (13). Eyes not reaching to the base of the mandibles.
11 (12). Apex of the abdomen black . . . . . *sedulus.*
12 (11). Apex of the abdomen red . . . . . *excelsus.*
13 (10). Eyes reaching to the base of the mandibles . . . . . *chontalensis.*
14 (1). Thorax red, wholly or for the greater part.
15 (20). Abdomen black, more or less white laterally and beneath.
16 (19). Fore legs black.
17 (18). Mouth black; ovipositor shorter than the abdomen . . . . . *melanostoma.*
18 (17). Mouth reddish; ovipositor longer than the abdomen . . . . *erythrostoma.*
19 (16). Fore legs red . . . . . *nicaraguensis.*
20 (15). Abdomen rufous.
21 (22). Head and legs black . . . . . *aspasia.*
22 (21). Head and legs rufous.
23 (24). Anterior tibiæ and femora black . . . . . *albispina.*
24 (23). Anterior tibiæ and femora pale testaceous . . . . . *forreri.*

6. **Bracon distinguendus.** (Tab. XIII. fig. 12.)

Niger, crassus; abdominis segmentis 1°–4ᵐ rufis, articulatione suturiformi late sinuata; alis fuscescentibus, apice vix hyalinis; terebra quam abdomen longiore. ♀.
Long. 9 millim.; terebra 6 millim.

Hab. Panama, Bugaba 800 to 1500 feet (*Champion*).

Antennæ rather stout, microscopically pilose; the scape but slightly produced at the apex beneath. Head cubital, broader than long, retreating behind; front depressed, broadly, but not very deeply, a furrow leading down from the ocelli in the centre. Face irregularly and rugosely reticulated; a sharp keel running down from the outer side of each antenna, and another keel parallel to the eyes, the space enclosed by these two keels being transversely reticulated; clypeus finely punctured, projecting. Palpi long, sparsely pilose. Thorax stout; the middle lobe of the mesonotum scarcely raised or separated from the lateral; the furrows almost obsolete. Metathorax short, broad, gradually sloping to the apex. Abdomen not much longer than the thorax, broad at the base, gradually narrowing from the second segment to the blunt apex. The raised central part of the petiole is depressed at the base and becomes slightly narrowed towards the apex; the lateral part is broader than the central, and has a shallow, shining, furrow down its centre. The suturiform articulation is broad, curved backwards in the middle, and shallow. Legs stout, the tibiæ and tarsi densely pilose, opaque; femora shining. The wings are lighter towards the apex; the recurrent nervure is received in front of the first transverse cubital one; the second cubital cellule is a little shorter than the third; at the base the cubitus forms a round curve.

A broad, stout insect with large wings, and readily known from the following two species by the red abdomen and shorter ovipositor.

7. **Bracon apicipennis.** (Tab. XIII. fig. 13.)

Niger; ventris basi late rufa; alis fuscescentibus, litura hyalina; terebra quam corpus fere longiore; articulatione suturiformi vix sinuata. ♀.
Long. 9 millim.; terebra 7·5 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ stout, as long as the thorax and abdomen together, the scape not produced at the apex beneath. Head narrower than the mesothorax, not much developed behind the eyes; front depressed, but not broadly, a broad and deep furrow leading down from the ocelli. Face rugosely punctured, two keels on each side, enclosing transverse reticulations; clypeus projecting, the apex margined, a broad semicircular depression at its base. Thorax stout, the middle lobe of the mesonotum not clearly separated from the lateral one; scutellum not raised above the mesonotum; metathorax short, broader than long, and having a gradual but somewhat rounded steep slope to the apex, the oblique furrow at its side wide and deep. Petiole with the central part raised considerably above the lateral part and deeply excavated at the base; the lateral furrow very deep and broad. The second abdominal segment is slightly depressed on each side at the base. The suturiform articulation is slightly bent backwards. The abdomen is shorter than the head and thorax together, being not much longer than the thorax. Cubital nervure broadly curved at the base; the recurrent nervure received a little in front of the first transverse cubital one; the second cubital cellule distinctly shorter than the third.

8. **Bracon heterodoxus.**

Niger; abd omine, lateribus et ventre sordide albis; articulatione suturiformi sinuata; terebra quam abdomen fere longiore; alis fuliginosis. ♀.
Long. 8·5 millim.

Hab. GUATEMALA, Las Mercedes 3000 feet (*Champion*).

Antennæ moderately stout; basal joint as long as the third and fourth joints together, not produced at the apex beneath. Front excavated, but not very deeply, the centre aciculate; the ocelli raised; face coarsely rugose; a keel down the side of the eyes; clypeus not projecting. Petiole not much longer than broad, the central part flat, large, excavated deeply at the base; the lateral furrow short, broad, moderately deep. The suturiform articulation is narrow and curved backwards in the middle. The abdomen is scarcely longer than the head and thorax together; a little longer, and slightly broader in the middle, than the thorax, and narrowed to a blunt point at the apex.

The head is longer than in *B. apicipennis*, being much more developed behind the eyes. The wings are torn beyond the stigma, so I cannot describe the neuration.

9. **Bracon erythrostoma.**

Niger; ore, pro- et mesothorace coxisque anticis, rufis; alis fuliginosis. ♀.
Long. 8 millim.; terebra 5·5 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet, Bugaba (*Champion*).

Antennæ nearly as long as the body, densely pilose; the third and fourth joints subequal; the basal joint produced at the apex on the underside. Head shining, retreating somewhat sharply behind the eyes; the top impunctate, the face coarsely and rugosely reticulated and with three stout keels running down the centre; eyes margined on the underside; clypeus rugosely punctured; front moderately depressed in the centre, the central furrow wide; the clypeus, the oral region, the mandibles (except at the apex), and palpi reddish. Thorax shining, impunctate; scutellum triangular, flattish; metapleural suture deep, moderately wide. Petiole with the central part wide, broadly raised in the middle, the bordering furrow narrow, the sides sloping away from this gradually. Abdomen not much longer than the head and thorax united, and narrowing from the second segment; second segment considerably shorter than the third, its apex transverse; the apical ventral segment is large and ploughshare-shaped; the apical segments at their junction, and the sides, narrowly, are whitish. Legs stout, pilose. Wings longish; the cubital nervure with a round curve; the recurrent nervure received shortly before the transverse cubital one; the second cubital cellule is, on the lower side, a little longer than the third.

10. **Bracon nicaraguensis.**

Niger; ore, palpis, orbitis, prothorace, mesothorace, tegulis pedibusque anticis, rufis; abdominis segmentis marginibus albis, articulatione suturiformi fere sinuata; alis fuliginosis. ♀.
♂. Pedibus anterioribus rufis.
Long. 7·5 millim.; terebra 3·5 millim.

Hab. NICARAGUA, Chontales (*Janson*); PANAMA, Bugaba (*Champion*).

Closely related to *B. erythrostoma*, but with the rufous colour on the head more developed, the occiput being almost entirely of that colour; the palpi are light rufous. The antennæ are scarcely so stout; the anterior legs are entirely rufous, as is also the mesothorax; the petiole is more sharply vertical, and has the inner furrow wider; the abdominal segments are not so broadly lined with white, and the ovipositor is shorter.

11. **Bracon laticarinatus.**

Niger; thorace pedibusque 4 anterioribus rufis; alis fuscis. ♂.
Long. 6. millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Very much resembling in form, sculpture, and coloration what I have regarded as the male of *B. nicaraguensis*; in coloration differing from that insect in having the

mouth black (the mandibles only being reddish at the base), and the thorax with only a little black on the apex of the metanotum; but the chief distinction consists in there being a broad keel down the second segment, extending a little beyond the suturiform articulation, and having a depression on either side at the base.

12. **Bracon melanostoma.**

Niger; pronoto, mesothorace basique coxarum anticarum, rufis; abdominis marginibus albidis; alis fuliginosis. ♀.
Long. 9 millim.; terebra fere 4 millim.

Hab. NICARAGUA, Chontales (*Janson*).

Face rugosely reticulated, with some longitudinal keels; over each antenna is an oval depression, separated by a broad keel, in the centre of which is a shallow furrow; the centre of the clypeus dull red; the joints of the palpi dull white at the apex. Petiole deeply excavated at the base, the central part moderately large and surrounded by a wide and deep furrow (but not so wide as the part of the petiole on the outer side of it). Suturiform articulation waved. The third and following segments at the apex, a line along the sides, and the ventral surface in the centre, whitish. Wings long; the second cubital cellule on both sides shorter than the third; the recurrent nervure received at a little distance from the first transverse cubital one. Legs stout, the spurs whitish, the femora with some long hairs, the tibiæ and tarsi densely pilose.

Very nearly related to *B. erythrostoma*, but a little longer; the ovipositor is shorter, compared to the body; the head (except the mandibles, which are broadly piceous towards the apex) is entirely black, as is also the prosternum; the abdomen is longer, and is broadly white along the sides; the suturiform articulation is curved backwards, somewhat sharply at the middle; the recurrent nervure is received further from the first transverse cubital one; and the inner furrow of the petiole is broader and deeper, the petiole itself being more developed laterally.

13. **Bracon morrisoni.** (Tab. XIII. fig. 18.)

Niger; mesonoti lobo medio abdomineque rufis, articulatione suturiformi recta; terebra quam abdomen vix longiore; alis fuscescentibus. ♀.
Long. 8 millim.; terebra fere 4 millim.

Hab. MEXICO, Northern Sonora (*Morrison*).

Antennæ shorter than the thorax and abdomen united; stout, of nearly uniform thickness throughout, microscopically pilose. Head in front covered with long silvery-white hair; the orbits externally narrowly red; the face coarsely punctured; the front opaque and punctured laterally; the centre shining, impunctate, and slightly depressed, the central furrow narrow; eyes projecting, oval; palpi densely covered with white pubescence. Thorax shining, impunctate; mesopleuræ in front and metathorax covered with long white hair. Mesothorax red, black laterally along the middle lobe, the

black colour, however, not reaching the base. Petiole almost perpendicular, its apex reaching above the thorax; hollowed in the centre, the centre bicarinate, the sides separated from the central keel by deep depressions. Abdomen scarcely so long as the head and thorax united, at the base somewhat broader than the thorax, and becoming gradually narrower to the apex, which is rounded; the sides and ventral surface sparsely clothed with white hair. Legs stout; the coxæ covered with longish white hair; the tibiæ and tarsi densely pilose. Wings longish, narrow; the nervures and stigma dull black; the second cubital cellule on both sides (but especially on the upper) shorter than the third.

14. **Bracon sedulus.** (Tab. XIII. fig. 14.)

Niger; abdominis segmentis 1°–6ᵐ rufis, articulatione suturiformi recta; terebra quam abdomen breviore; alis fuscescentibus. ♀.

Long. 9 millim.; terebra 4·5 millim.

Hab. NICARAGUA, Chontales (*Janson*).

Antennæ as long as the body, tapering towards the apex; the third and fourth joints shorter than the basal one, and subequal. Face densely covered with long white hair; shining, impunctate, transverse; clypeus not projecting, and not separated from the face by a groove. Front but slightly excavated; a broad, but not long, furrow leads down into it from the ocelli, which are raised. Thorax shining, impunctate; mesonotal sutures deep; prothorax with a deep furrow on the side; metathorax densely covered with long white hair, gradually sloping to the apex. Abdomen longer than the head and thorax together; broader in the middle than the mesothorax, and becoming compressed laterally towards the apex. The petiole is raised in the centre, this raised central part being bounded by straight furrows. The suturiform articulation is almost transverse, narrow, and shallow.

Differs from *B. morrisoni* in having the thorax entirely black, and the abdomen not entirely red, the second cubital cellule nearly as long as the third, the abdomen longer compared to the head and thorax, and the eyes shorter and not reaching quite so near to the mandibles. *B. excelsus* may be known from *B. sedulus* by its smaller size, the darker wings, the shorter second cubital cellule, the abdomen shorter and not entirely red, the ovipositor shorter, &c.

15. **Bracon excelsus.**

Niger; abdomine rufo, articulatione suturiformi recta; terebra quam abdomen fere breviore; alis fuliginosis. ♀.

Long. 7 millim.; terebra 2 millim.

Hab. MEXICO, Presidio (*Forrer*).

Antennæ with the pedicel of the scape longish, half the length of the first joint; the first joint globular, not produced at the apex, and about three times longer than the second; the third and fourth joints subequal. Face almost transverse, scarcely

punctured; clypeus not projecting, and not separated by a furrow from the face; the front is excavated, the excavation moderately deep and separated from the ocelli by a space greater than its own length. Thorax impunctate, shining; mesonotal sutures obsolete; pleuræ and metanotum but sparsely pilose. Petiole perpendicular, the central part almost straight, the furrows broad. The suturiform articulation narrow, shallow, transverse. The abdomen somewhat shorter than the head and thorax together.

16. **Bracon chontalensis.**

Niger, abdomine rufo; alis fuscescentibus; oculis basin mandibularum attingentibus.
Long. 6·5 millim.

Hab. NICARAGUA, Chontales (*Janson*).

Antennæ somewhat longer than the body, black, the flagellum dull brownish beneath, microscopically pilose. Head narrower than the thorax, shining, impunctate, narrowing considerably behind the eyes; the central furrow in the front broad, deep; face sparsely pilose; tips of the mandibles reddish; eyes large, oval, reaching nearly to the base of the mandibles; the orbits externally on the lower side dull reddish. Thorax shining, impunctate, the sides sparsely pilose; the oblique furrow on the metapleuræ deep. Abdomen a little shorter, and, if anything, broader than the thorax. Petiole perpendicular.

Similar in coloration to *B. excelsus*, but easily known from that species by the eyes reaching nearly to the base of the mandibles.

The specimen described below (also from Chontales) is probably the male:—

Antennæ a little longer than the body, the pedicel very short; first joint of nearly equal width throughout, and about the length of the third; the flagellum closely pilose, fuscous on the lower side. Face densely covered with longish white hair, impunctate, smooth; clypeus slightly projecting, separated from the face by a not very distinct furrow. Front slightly depressed in the centre; a furrow leading into it from the ocelli. Thorax shining, the metathorax covered with long white hair. Abdomen shorter than the thorax and head together, becoming gradually narrower from the base of the second segment; petiole almost perpendicular, the central part widening towards the apex, its sides straight; suturiform articulation straight, minute. The second cubital cellule shorter than the third; the recurrent nervure interstitial. Length 6 millim.

17. **Bracon evolans.**

Niger; tarsis anticis palpisque albis; abdomine rufo, articulatione suturiformi sinuata; alis fuliginosis. ♂.
Long. 7 millim.

Hab. MEXICO, Presidio (*Forrer*).

Antennæ longer than the body, 41-jointed, microscopically pilose; first joint a little

longer than the third, thickened and produced at the apex beneath; the third joint a little longer than the fourth. Face irregularly and rugosely reticulated, broadly but not deeply excavated over the antennæ, the depression reaching almost to the ocelli (from which there runs only a very small furrow); clypeus projecting, and separated from the face by a wide depression. The oral region bears long white hair; the mandibles are piceous; the palpi white, hairy. The sternum, pleuræ, and metathorax are densely covered with long white hair. The middle part of the petiole is broad, and is bordered by deep, not very wide, and slightly curved furrows. The abdomen is a little longer than the head and thorax together, and becomes gradually narrowed towards the apex. The suturiform articulation is narrow, shallow, and slightly bent backwards in the middle. Cubital nervure broadly curved at the base; the recurrent nervure received considerably in front of the first transverse cubital one; second cubital cellule on the lower side longer than the third.

18. **Bracon aspasia.**

Rufus; capite, antennis pedibusque, nigris; alis fuscescentibus, stigmate fusco; articulatione suturiformi sinuata; terebra thoracis longitudine. ♀.

Long. fere 8 millim.; terebra 2 millim.

Hab. Mexico, Presidio (*Forrer*).

Antennæ originating from large tubercles, stout, microscopically pilose, the apical joints fuscous; basal joint and the scape four times longer than the second joint, its apex dilated; first joint of the flagellum not much longer than the second. Face rugose, the sides irregularly reticulated, the centre transversely striated, the striations running into the punctures. There is a broad, somewhat oval, depression above each antenna, the depressions separated by two curved keels, which approach each other in the middle and diverge outwardly at the base and apex. Apical joints of the palpi fuscous. The lower part of face and metapleuræ covered with long glistening white hairs. Centre of the petiole transverse at the apex, the base narrowed; the surrounding furrow broad, moderately deep. Second segment curved, the sides covered with longish white hair; second and the following segments without any depressions, the suturiform articulation narrow, curved.

19. **Bracon albispina.** (Tab. XIII. fig. 15.)

Rufo-testaceus; antennis, apice femorum, tibiis tarsisque anterioribus, apice tibiarum tarsisque posticis, nigris; alis fuscescentibus, stigmate fusco; articulatione suturiformi vix sinuata. ♀.

Long. 7 millim.; terebra 1·5 millim.

Hab. Mexico, Valladolid in Yucatan (*Gaumer*), Presidio (*Forrer*).

Antennæ scarcely so long as the thorax and abdomen together, fuscous on the lower side towards the apex; basal joint four times longer than the second, shining, glabrous; the flagellum microscopically pilose; the third and fourth joints subequal. Face

rugose, broadly, but largely, projecting in the middle; front slightly depressed above the antennæ; a broad and deep furrow leading down from the ocelli, which are surrounded by a narrower triangular one. Face, prosternum, metathorax, and coxæ covered with long white hair, the abdomen and legs with shorter hair. Metathorax with a gradual rounded slope to the apex, the apex with a raised border. Petiole deeply depressed in the middle at the basal fourth; the raised central mass narrowed at the base, the apex rounded; inner furrow wide, the outer one placed below the raised margin. The suturiform articulation moderately deep and wide, curved. There are no depressions on any of the segments, which are shining, impunctate, and depressed at the base. The abdomen is a little longer and not much wider than the thorax, and becomes gradually narrowed from the third segment to the apex. The apices of the four front femora, their tibiæ and tarsi, the apices of the hind tibiæ, and the hind tarsi, are black; the base of the tibiæ and the spurs white. The cubital nervure is slightly angled at the base, and the recurrent nervure received a little in front of the transverse cubital one.

The amount of black on the legs varies, and the abdominal segments are sometimes streaked transversely with obscure yellow.

20. **Bracon forreri.**

Rufo-testaceus; antennis, apice tibiarum posticarum tarsisque, nigris; alis fuscescentibus, stigmate fusco; articulatione suturiformi recta.

Long. 8 millim.

Hab. Mexico, Presidio (*Forrer*).

Antennæ as long as the body, moderately stout; densely, microscopically pilose; the joints very closely articulated; scape reddish beneath. Head shining, impunctate above, the face not so shining, and obscurely and longitudinally striated; moderately depressed above the antennæ, the central furrow deep; ocelli surrounded by a furrow; a wide, not very deep, furrow down the sides of the cheeks; tips of the mandibles black; palpi pale. Thorax shining, impunctate; scutellum narrowed towards the apex, but not sharply, the sides distinct; metanotum with a gradual slope to the apex; a furrow along the sides of the metapleuræ, originating in a deep fovea. Abdomen shining, impunctate; central area of the petiole comparatively small, the inner furrow broad and with a wide outer border; segments deeply separated, the second without depressions. Cubital nervure at the base broadly curved; the recurrent nervure received a little in front of the transverse cubital one; the second cubital cellule much shorter than the third.

The group of B. ALTICOLA.

Abdomen aciculate, the second segment in the middle rugosely punctured. Metanotum keeled in the middle, rugose on either side of the keel. Eyes oblong, reaching to the base of the clypeus.

21. **Bracon alticola.**

Niger; mandibulis, abdomine pedibusque rufo-testaceis; tibiis intermediis, tibiis tarsisque posticis, nigris, tarsis anticis fuscis; articulatione suturiformi recta; alis fere fuscis, stigmate et nervis testaceis, cellula cubitali 2ª quam 3ª breviore. ♀.

Long. 4·5 millim.; terebra fere 2 millim.

Hab. MEXICO, Ciudad in Durango 8100 feet (*Forrer*).

Antennæ stout, scarcely attenuated towards the apex; the flagellum densely covered with a microscopic pile. Head shining, the face aciculate, bearing some pale hairs; clypeus at the base almost transverse; trophi large, dull testaceous. Thorax shining, impunctate, the pleuræ and metanotum covered with longish white hair; parapsidal sutures large, deep; a wide, transverse, longitudinally keeled furrow in front of the scutellum. Petiole vertical, deeply excavated at the base, aciculate, the inner furrow wide and deep and rounded at the base and apex; the petiole above and the punctured central part of the second segment black; the base of the second segment distinctly margined. The cubital nervure is but slightly curved, the recurrent nervure is interstitial; the first transverse cubital nervure is very oblique, so that the upperside of the second cubital cellule is much shorter than the lower. The legs are densely covered with pale hairs; the spurs are testaceous; the anterior coxæ are black at the base.

The smallest species of *Bracon* known from our region.

ii. *Abdomen punctured.*

The group of B. HEBES.

Abdomen finely and closely punctured all over. Head shining, the face obscurely aciculate. Eyes oval, not reaching to the base of the clypeus.

Differs from the other groups with punctured abdomen in the punctuation being very close and fine.

22. **Bracon hebes.**

Rufo-testaceus; flagello antennarum nigro; alis fumatis, stigmate sordide testaceo; articulatione suturiformi recta. ♀.

Long. 4·5 millim.; terebra 1·5 millim.

Hab. MEXICO, Presidio (*Forrer*).

Antennæ 39–41-jointed, longer than the body, microscopically pilose. Head sparsely

pilose; frontal furrow narrow, shallow; palpi longish, pale testaceous. Parapsidal furrows not deep; a shallow, not very distinct, furrow runs down the centre of the metanotum. Petiole semiperpendicular, shining, impunctate. The abdomen is about the length of the head and thorax united. The recurrent nervure is nearly interstitial; the second cubital cellule shorter than the third. The hind tarsi are more or less blackish.

The group of B. DEMOCRATICUS.

Abdomen irregularly, longitudinally punctured; central part of the petiole shield-shaped, not narrowed at the apex, the apex transverse; second segment without any depressions, and with a smooth, triangular area at the base; suturiform articulation wide, deep, longitudinally striated. Abdomen (in the female) shorter than the head and thorax united, and wider than the thorax. Eyes oval, reaching to the apex of the clypeus.

1 (2). Head and legs luteous. . . . . *blandicus.*
2 (1). Head and legs black, wholly or in part.
3 (4). Head and legs entirely black; the area on second segment shield-shaped, as broad as long . . . . . *democraticus.*
4 (3). Head and legs partly black; the area on second segment much longer than broad (males only are known).
5 (6). Abdomen much longer than the head and thorax united; suturiform articulation not striolated; ocelli not enclosed in black . . . . *comparatus.*
6 (5). Abdomen scarcely longer than the head and thorax united; suturiform articulation striolated; ocelli broadly surrounded with black. *crudelis.*

23. **Bracon blandicus.** (Tab. XIII. fig. 17.)

Rufo-testaceus; antennis nigris; apice tibiarum posticarum tarsisque fuscis; alis fuscescentibus, stigmate fusco; terebra corporis longitudine.

Long. 7 millim.; terebra fere 7 millim.

Hab. MEXICO, Northern Sonora (*Morrison*).

Antennæ originating from distinct tubercles, scarcely so long as the thorax and abdomen together; basal joint dilated at the apex, slightly curved on the lower side, about three times as long as the second; third and fourth joints subequal. Face shining, impunctate; front but slightly dilated above the antennæ; central furrow indistinct. Metanotum with a gradual slope to the apex. Petiole smooth, impunctate; the central part broad and depressed at the base; inner furrow broad and deep, its outer margin acute, the outer furrow narrower, situated lower down than the inner, and becoming narrower towards the base. Segments 2–4 irregularly reticulated, the apical ones impunctate; first furrow narrow, moderately deep, nearly straight. The recurrent nervure is interstitial; the second cubital cellule much shorter than the third.

24. **Bracon democraticus.** (Tab. XIII. fig. 19.)

Ferrugineus; antennis, capite pedibusque, nigris; alis fuliginosis, stigmate nigro.
Long. 7 millim.; terebra 5·5 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Face finely and closely punctured, a semicircular, shining, impunctate space over the clypeus; the depression over the antennæ shallow, the furrow narrow. The two furrows of the petiole punctured somewhat closely, and of nearly equal width. Second segment coarsely and longitudinally striated (some of the striations being much stronger than others), a smooth, shining, impunctate, triangularly shaped space at the base, the apex shining and impunctate; third segment longitudinally striated like the second, the fourth segment broadly so in the middle; the suturiform articulation broad, longitudinally striated. The abdomen is scarcely so long as the thorax, the petiole at the base is semiperpendicular. The recurrent nervure is received a little in front of the transverse cubital nervure.

25. **Bracon comparatus.**

Luteus; antennis, femoribus tibiisque posterioribus, nigris; alis fumatis, stigmate testaceo. ♂.
Long. 8·5 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ tapering towards the apex, originating from distinct tubercles; basal joint a little more than three times the length of and one half thicker than the second, the apex obliquely truncated; the joints of the flagellum indistinctly separated; third and fourth joints subequal. Face shining, impunctate; front but slightly depressed above the antennæ. Metathorax with a gradual slope to the apex. Abdomen nearly double the length of the thorax, sessile; petiole one half longer than the second segment; flat, the central part tongue-shaped (not reaching to the apex of the petiole), the apical part narrower and keeled in the centre, the furrows shallow; the first transverse furrow is indicated, but not very distinctly; the petiole is shining, impunctate, the rest indistinctly reticulated.

26. **Bracon crudelis.**

Luteus; femoribus, tibiis tarsisque pro majore parte antennisque, nigris; alis fumatis, stigmate fusco; articulatione suturiformi recta, striolata.
Long. 7 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ as long as the body, nearly glabrous, the joints distinctly separated; basal joint three times as long as the second, slightly curved beneath, the apex semiobliquely truncated; third joint a little longer than the fourth. Face shining, obscurely punctured; front depressed above the antennæ, the furrow not very deep; ocelli surrounded by a

black patch. Metathorax with a gradual slope to the apex. Abdomen sessile; petiole shining, impunctate, the raised part 3-angled, transverse at the apex, narrowed to a point at the base, a straight keel running down the side, the furrow on the inner side of this broad (there is none on the outer); segments 2–4 obscurely punctured and reticulated, the apical ones shining and impunctate; a deep, obscurely reticulated furrow at the apex of the second segment.

Almost similar in coloration to *B. comparatus*, but easily known from that species by the much shorter abdomen, the less excavated front, and the longitudinally striolated suturiform articulation.

iii. *Abdomen striated.*

The group of B. MONTIVAGUS.

Abdomen strongly longitudinally striated, except at the apex; longer than the head and thorax united; central part of the petiole rounded and narrowed behind; an oblique depression on each side of the second segment, a sharp keel down the centre; suturiform articulation transverse, wide, deep, strongly longitudinally striated. Eyes oblong, just reaching to the apex of the clypeus.

27. **Bracon montivagus.** (Tab. XIII. fig. 16.)

Rufus; antennis pedibusque nigris; coxis posterioribus femoribusque posticis rufis: articulatione suturiformi recta; alis fuliginosis, stigmate nigro; terebra quam corpus longiore.
Long. 10 millim.; terebra 10·5 millim.

Hab. MEXICO, Ciudad in Durango 8100 feet (*Forrer*).

Antennæ a little shorter (9 millim. in length) than the body; of nearly uniform thickness; the flagellum covered with a very short microscopic pile, the scape more shining and sparsely clothed with longish hair; third joint nearly one fourth longer than the fourth. Head shining, the face almost impunctate, the front not much depressed above the antennæ, the central furrow indistinct; ocelli surrounded by a moderately deep furrow; apex of the mandibles and palpi black. Thorax shining, impunctate, the metanotum irregularly reticulated; scutellum triangular, the sides broadly, and not very distinctly, keeled. Petiole longitudinally reticulated and striated, the broad inner furrow transversely striated, the outer furrow equally broad and similarly striated and perpendicular. Second segment coarsely longitudinally striated, most strongly at the base, where there is a small triangular, impunctate, shining space; an oblique depression on each side at the base; the third and fourth segments longitudinally striated, but not so coarsely as the second, their apices shining, impunctate, as are also the apical segments; the transverse furrow deep, wide. The recurrent nervure is interstitial; the cubital nervure from the second transverse cubital cellule curves obliquely downwards, thus making the third cubital cellule rather wide.

IPHIAULAX.

Iphiaulax, Förster, Verh. Ver. Rheinl. ix. p. 234 (1862).

According to Förster, *Iphiaulax* differs from *Bracon*, as limited by him, by the abdomen having "mehreren stark gekerbten breiten Querfurchen," while *Bracon* has it without, "oder bloss mit einer einzigen, stark gekerbten, breiten Querfurche." The distinction between the two seems to me to be very artificial, but I separate them to facilitate identification. In some species the furrows behind the suturiform articulation are not readily seen through being hidden by the overlapping segment in front. The species of *Iphiaulax* are more numerous than those of *Bracon*, and have an equally wide range over the globe, but are more especially numerous in the tropics. As in *Bracon*, I have divided the 'genus' into sections.

I. *A bifid or simple spine below the antennæ.*

The group of I. NIGRICEPS.

Abdomen considerably longer than the head and thorax together; petiole flat, with a large tongue-shaped area in the centre, bounded by two narrow keels, the inner one only surrounding the area at the base; second segment depressed at the side and having a stout keel on the basal half in the centre. Recurrent nervure interstitial. (Species 1.)

1. **Iphiaulax nigriceps.** (Tab. XIII. fig. 20, ♀.)

Bracon nigriceps, Brullé, Hist. Nat. Ins. Hymén. iv. p. 334[1].

Hab. GUATEMALA, Teleman (*Champion*); NICARAGUA, Chontales (*Janson*); PANAMA, Volcan de Chiriqui 2000 to 3000 feet, Bugaba (*Champion*); GUIANA, Cayenne[1].

II. *No spine on the face.*

i. *Abdomen not punctured or striated* (*I. brachyura* excepted). (Species 2–54.)

† *No keel in the centre of the second segment.* (Species 2–6.)

The group of I. PULCHRIPENNIS.

Eyes oval, not much longer than wide, not reaching to the clypeus. Basal joint of the scape longish, narrow, longer than the following three joints united. Abdomen not broadly dilated to the fourth segment, almost of equal breadth; the tongue-shaped area in the petiole not reaching to the base, the latter deeply excavated in the centre; nearly twice the length of the head and thorax united; the furrow down the sides of the second segment narrow; suturiform articulation narrow, shallow. Ovipositor double the length of the body. Body luteous, the head and the apex of the abdomen black; wings yellowish-hyaline, banded with fuscous. (Species 2 & 3.)

1 (2). Metathorax black . . . . . *pulchripennis.*

2 (1). Metathorax luteous . . . . . *rogersi.*

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2. **Iphiaulax pulchripennis.** (Tab. XIII. fig. 23, ♀.)

Niger; mesothorace abdominisque basi luteis; alis fusco-hyalinis, medio apiceque fumatis, nervis nigris. ♀.
Long. 19 millim.; terebra 46 millim.

Hab. GUATEMALA, Panima in Vera Paz (*Champion*); COSTA RICA, Volcan de Irazu 6000 to 7000 feet (*Rogers*).

Smooth, shining, impunctate; face (especially the sides) and metathorax covered with long pale hairs; the lower part of the head with black hairs. Antennæ as long as the body; the third joint distinctly curved, more than one half longer than the fourth. Antennal tubercles closely punctured; the face bears a few, almost obsolete punctures, and in its centre are two longitudinal furrows leading to the base of the clypeus; the latter has two oblique furrows leading from the above pair, but not nearly so distinct; ocelli surrounded by a furrow, and a wider and deeper one leads down from them to the antennæ; palpi fuscous, densely pilose. Middle lobe of the mesonotum not clearly separated from the lateral one. The depression on the second segment commences a little from the centre, curves round to the sides, goes straight down the latter, and then curves again inwardly towards the middle, but not reaching it, and becoming shallower towards the termination; at the base of the third segment on either side is an oblique depression, a little longer than broad, and not reaching to the side; the apical segments are pilose. The extreme base of the wing is smoky; the blotch in the middle commences at the transverse basal nervure and ends at the first transverse cubital; the apical cloud commences at the second transverse cubital; in the hind wings the cloud occupies scarcely the apical half.

3. **Iphiaulax rogersi.** (Tab. XIII. fig. 22, ♀.)

Luteus; antennis, capite, abdominis apice pedibusque, nigris; alis flavo-hyalinis, medio apiceque fumatis, stigmate sordide flavo. ♀.
Long. 18 millim.; terebra 51 millim.

Hab. COSTA RICA, Volcan de Irazu 6000 to 7000 feet (*Rogers*).

Similar in coloration to the preceding, except that the metathorax is luteous and the stigma yellowish. It also differs in the apex of the clypeus being almost transverse, and not gaping so much over the mouth; in the transverse basal nervure being completely interstitial; in the antennæ being, if anything, thinner and shorter; the ovipositor longer; the clouds in the wings lighter in tint, the stigma yellower, the second cubital cellule longer compared to the third; the abdomen narrower, &c.

The group of I. DOLOSUS.

Eyes oblong, distinctly longer than wide, reaching to the apex of the clypeus. Basal joint of the scape thick, not longer than the following three joints united. Abdomen dilated from the base towards the apex; the tongue-shaped area in the petiole reaching nearly to the base, the latter not deeply excavated; not much longer than the head and thorax united. Ovipositor longer than the body. Body luteous, the head and the apex of the abdomen black; wings yellowish-hyaline, banded with fuscous, the stigma yellow. (Species 4 & 5.)

1 (2). Wings black at the base . . . . . *exaltatus.*
2 (1). Wings yellow at the base . . . . . *dolosus.*

4. **Iphiaulax dolosus.**

Flavo-testaceus; capite, antennis, prosterno, pedibus posticis, abdominis apice terebraque, nigris; alis flavo-hyalinis, fusco bifasciatis, stigmate flavo. ♀.
Long. 17 millim.; terebra 36 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*); PANAMA, Volcan de Chiriqui 2000 to 3000 feet, Caldera 1200 feet (*Champion*).

Face rugose; the rest of the head shining, impunctate, except the sides of the frontal furrow which are aciculate. Thorax shining, impunctate, as is also the abdomen. Metathorax at the sides covered with a longish pale pubescence. Abdomen longer than the head and thorax united, gradually dilated to the apex of the fourth segment, thence narrowing to the apex, which is not acute; the black commencing at the base of the fifth segment. The four anterior legs are luteous, except the tips of the tarsi; the hind legs black, except the apices of the coxæ, the apical joint of the trochanter, the base of the femora, and the tibiæ.

5. **Iphiaulax exaltatus.** (Tab. XIII. fig. 21, ♀.)

Flavo-testaceus; capite, antennis, pedibus posticis, coxis tarsisque intermediis, abdominis apice terebraque, nigris; alis flavo-hyalinis, fusco trifasciatis. ♀.
Long. 16 millim.; terebra 28 millim.

Hab. COSTA RICA, Cache (*Rogers*).

Similar in form and sculpture to *I. dolosus*, but smaller; the fourth abdominal segment black; the central part of the petiole reaching nearly to the extreme base and not so sharply pointed, the base itself being not so deeply excavated; the second segment longer compared to the third, and with the lateral furrows deeper; the apical branch of the suturiform articulation straight, not distinctly curved; the wings black at the base and deeper in tint, in the yellow as well as in the black; the middle coxæ and tarsi black; the hind spurs and knees also black (not yellow as in *I. dolosus*).

The group of I. LACHRYMOSUS.

The centre of the second abdominal segment raised, but not forming a keel; the lateral furrows oblique, wide, deep; suturiform articulation sinuated. Inner furrow of the petiole wide, deep, the central part not much narrowed towards the base. Abdomen a little longer than the head and thorax united; the apical ventral segment ploughshare-shaped. Ovipositor longer than the body. Eyes oval; face rough, shining. Recurrent nervure not interstitial. Body luteous, the head and the apex of the abdomen black; wings yellowish-hyaline, banded with fuscous. (Species 6.)

The raised central part of the second segment sufficiently distinguishes this group from the two preceding. The coloration of the body and wings is of the same type, but the species is much smaller in size.

6. **Iphiaulax lachrymosus.** (Tab. XIII. fig. 24, ♀.)

Luteus; antennis, capite, abdominis apice late pedibusque, nigris; geniculis, trochanteribus tarsisque anticis luteis; alis flavo-hyalinis, fusco bifasciatis, stigmate nigro; articulatione suturiformi sinuata; terebra quam corpus longiore. ♀.

Long. 9 millim.; terebra 10 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ stout, 43-jointed, scarcely so long as the body; sparsely microscopically pilose. Head shining; eyes margined; a rough keel down either side of the face; the central part uneven; the keel in the centre of the front wide, moderately deep. Middle lobe of the mesonotum distinct; scutellum raised, the sides keeled, becoming narrowed towards the apex. The middle cloud in the fore wings extends from a little in front of the transverse basal nervure to the apex of the stigma; the central cloud is broad; in the hind wings only the apex is broadly smoky.

In general coloration and size this species approaches very closely to *I. gloriatorius*, but the different structure of the second abdominal segment sufficiently distinguishes the two.

†† *A keel on the second segment.* (Species 7–54.)

The group of I. SCIARIUS.

The keel on the second segment extending to the apex, becoming gradually narrowed to a point, not dilated at the base, the depression on either side of it very deep and wide; the lateral furrow also deep and wide, slightly oblique, and not curved, extending to near the apex. The apical fork of the suturiform articulation extending to the apical third of the segment, forming a rounded curve, not reaching to the side. Eyes oval; head considerably developed behind them. Body luteous, the head, the apex of the abdomen, and the greater part of the legs, black; wings smoky-hyaline, a fascia below the stigma and the apex, fuscous. (Species 7.)

The general appearance of this species is similar to the preceding, but the keel on the second segment sufficiently distinguishes it; from the next group it may be known by its more elongated body, the abdomen especially being longer and narrower, by the antennæ being longer and more filiform, by the longer and narrower keel on the second segment, and by there being no keel on the third segment.

7. **Iphiaulax sciarius.**

Flavo-testaceus; capite, antennis, prosterno abdominisque apice late, nigris; tarsis anticis, trochanteribus anterioribus, basi femorum geniculisque late, testaceis; alis flavo-hyalinis, fusco bifasciatis, stigmate nigro. ♀.
Long. 16 millim.; terebra 26 millim.

Hab. Costa Rica, Irazu 6000 to 7000 feet (*Rogers*).

Antennæ longish, microscopically pilose, the basal joints of the flagellum very closely amalgamated; basal joint of the scape nearly as long as the third and fourth joints united, thick, becoming slightly thicker towards the apex, which is transverse; the second joint of the scape much thinner. Head sparsely covered with longish pale hair on the face and behind; the cheeks punctured, but not strongly; the face smooth, shining, impunctate; slightly concave in the centre; front slightly depressed; the furrow leading down from the ocelli wide, but not very deep. Eyes oval, widely distant from the centre of the clypeus; the head largely developed behind them, but not projecting. Thorax shining, impunctate, sparsely covered with short pale hair; scutellum but slightly raised. Metathorax with a gradual slope to the apex. Petiole deeply and widely excavated at the base; base of the central part acute in the middle, the apex transverse; at the apex there is, on either side, a longish depression, which originates before the middle, where it is narrow, becoming wider towards the apex, so that the central portion becomes gradually narrowed; the usual inner furrow is absent (unless it be represented by the above-mentioned depression); the outer furrow is lateral, wide, and not visible from above. The keel on the second segment is flat on the top, becoming gradually narrowed towards the apex, which it quite reaches; there is a depression, double its own width, on either side of it; the lateral furrow is narrow and somewhat oblique. The suturiform articulation is narrow and straight. On the third segment there is, on either side, a curved furrow, reaching from the base to a little beyond the middle. At the apex of the third segment is a fine transverse groove, beyond which the segment projects at the sides over the fourth on the upper-side; there is a similar groove also on the fourth segment, the sides of which are also produced laterally above. Legs of moderate length, stout, closely pilose; the hind tarsi not much longer than the tibiæ; the apex of the four fore coxæ, the knees broadly, the basal third of the femora, the tarsi more or less in the middle, the apex of the hind trochanters, the base of the femora, and the base of the tibiæ are yellow, the remainder of the legs black. The cloud in the fore wings extends from the base of the first cubital cellule to a little beyond its apex, the cloud being narrowed in the middle; the apical cloud begins from about the apex of the second cubital cellule.

The group of I. EROS.

The keel on the second segment triangular at the base, produced as a sharp keel to near the apex and bordered by a not very deep or wide furrow; the lateral furrow wide, oblique at the base. Apical branch of the suturiform articulation short, oblique. Body rufous, the head and the apex of the abdomen black; wings yellowish, banded with fuscous, the stigma yellow or black. (Species 8–14.)

The species of this section differ chiefly from *I. sciarius* in the structure of the basal segments of the abdomen and in the abdomen being shorter and broader.

A. *Suturiform articulation smooth, not striated. Legs for the greater part black.* (Species 8–11.)

a. *Stigma yellow.* (Species 8–10.)

1 (2). Metathorax yellow . . . . . *eros.*
2 (1). Metathorax black.
3 (4). A small raised space in the centre of the suturiform articulation; knees broadly yellow . . . . . *trochanteratus.*
4 (3). No raised space in the suturiform articulation; knees black . . . *beatus.*

8. **Iphiaulax eros.** (Tab. XIII. fig. 25, ♀.)

Luteus; antennis, capite, abdominis apice pedibusque, nigris; alis flavis, medio apiceque fumatis. ♀.
Long. 12 millim.; terebra fere 9 millim.

Hab. GUATEMALA, San Juan in Vera Paz (*Champion*).

Antennæ stout, very slightly compressed; the third joint scarcely one fourth longer than the succeeding one. Face finely punctured, semi-opaque; apex of the clypeus curved, not projecting much. Middle lobe of the mesonotum clearly separated from the lateral lobe; the furrows distinct, especially in front; the longitudinal depression on the mesopleuræ wide, deep; the oblique suture on the metapleuræ shallower. The centre of the petiole raised, surrounded laterally by a wide and deep depression; the depression bounded externally by a sharp keel, which is separated from the external outer side by a furrow; in the centre of the raised central part is a shallow longitudinal furrow. The rest of the abdomen is broader than the mesothorax, and becomes gradually (but not acutely) narrowed towards the apex; on the basal half of the second and third segments, in the middle, is a carina, broad at the base, narrowed towards the apex; on both of these segments a deep furrow runs from near the middle obliquely to the sides, down which they run to near the apex, that on the second segment being broader and deeper than the one on the third, which is very narrow (but still deep) down the side; the raised keel on the apex of the third segment is very distinct, and there is a transverse furrow at the base of the fourth. The cloud in the centre of the fore wing reaches to the base of the stigma, and touches the first transverse cubital

nervure at its lower side; the apical cloud commences on the outer side of the transverse cubital nervure; in the lower wing the middle cloud is exactly opposite that on the fore wing, and the apical one is small; the transverse basal nervure is received in front of the first transverse cubital cellule; second cubital cellule not one half longer than the first and much shorter than the third.

In this species the abdomen is shorter compared to the thorax and much broader than in *I. trochanteratus*; the raised space on the third segment is much more distinct and extends as a carina to near the middle of the segment; the head is not so much nor so sharply narrowed behind the eyes, and the metathorax is yellow and the knees black. The thorax also has not such a reddish tinge.

9. **Iphiaulax trochanteratus.**

Rufus; capite, antennis, prosterno, metathorace, abdominis apice pedibusque, nigris; trochanteribus geniculisque testaceis; alis flavis, fascia medio apiceque fumatis, stigmate flavo. ♀.
Long. 11 millim.; terebra 7 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ longer than the body, the third and fourth joints subequal, the scape bearing longish white hair. Face covered with longish white hair, irregularly aciculate, and with a few punctures; the centre broadly dilated; vertex shining, impunctate; the ocelli slightly raised, surrounded by a furrow; a deep and broad furrow runs down from the ocelli to the antennæ, this part too being slightly depressed; teeth of the mandibles inclining to piceous; palpi pale testaceous. Mesonotal sutures indistinct. Scutellum raised gradually from the base and apex to the centre, longer than broad, shining, impunctate, covered with longish hair. Metathorax short, rounded, densely covered with pale hair, an oblique broad furrow on the pleuræ; a piceous band down the centre of the metanotum. The centre of the petiole raised, separated from the side by a broad and deep furrow; a longitudinal, broad but not very deep, furrow down the centre. A keel (broadest at the base) runs down the centre of the second segment; a broad and deep depression on each side of it, this depression originating at the base not far from the central keel; a short keel at the base, and a transverse depression on each side of the next segment; there is a shorter and more oblique depression on each side of the fourth segment. Legs (especially the tibiæ and tarsi) densely pilose; the fore coxæ are testaceous; the apices of the joints of the anterior tarsi and the spurs pale testaceous. The middle cloud in the fore wings commences at the base of the stigma, goes obliquely across the base of the first cubital cellule to the first transverse cubital nervure, and then follows the first recurrent nervure to the opposite side of the wing; the apical cloud commences at the end of the stigma, and forms a curve past the second transverse cubital nervure. The cloud in the hind wings is opposite that in the fore pair, the apical one is faint and narrow; transverse basal and first recurrent nervures almost interstitial.

10. **Iphiaulax beatus.** (Tab. XIV. fig. 18, ♀.)

Rufus; antennis, capite, prosterno, metathorace, abdominis apice pedibusque, nigris; alis flavo-hyalinis, fascia medio apiceque fumatis, stigmate flavo. ♀.

Long. 10·5 millim.; terebra 9 millim.

Hab. GUATEMALA, Las Mercedes 3000 feet (*Champion*).

Antennæ scarcely so long as the body, stout, the third joint distinctly longer than the fourth. Face transverse, faintly rugose; vertex shining, impunctate. Ocelli surrounded by a furrow; the part below them hollowed, the hollow with a distinct furrow in its centre; the face, and vertex to a less extent, sparsely covered with longish pale hairs. Mesonotal sutures distinct; scutellum not much raised above the scutum. Metathorax with a gradual slope; the oblique furrow below the stigma not very deep or distinct. Centre of the petiole raised, a broad deep furrow surrounding it, the furrow becoming wider towards the apex, thus contracting the central raised part. In the centre of the second segment is a raised keel, broad at the base, narrowed at the apex, and extending to the apex of the segment; a broad, oblique depression along the side. A transverse oblique depression at the base of the third segment; a transverse one on the following segment. Legs densely covered with pale hairs; spurs fuscous. The central cloud in the fore wings extends between the basal and the first transverse cubital nervure, going straight across, and having a round hyaline spot at the junction of the first recurrent and the cubital nervure; the stigma is black where the cloud touches it; the hind wings are uniformly faintly smoky.

A smaller species than *I. trochanteratus*, with the thorax almost red; the abdomen narrower, not being broader than the thorax; the antennæ shorter and thicker; the central part of the petiole narrowed and rounded at the apex, and consequently the inner furrow is curved (not straight as in *I. trochanteratus*); and the ovipositor longer.

b. *Stigma black.* (Species 11.)

11. **Iphiaulax janus.**

Luteus; antennis, capite, pronoto, pedibus abdominisque apice, nigris; alis fuscis, apice fasciaque medio fumatis. ♀.

Long. 14 millim.; terebra 10 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ stout; third joint straight, about one fourth longer than the following one. Face obscurely wrinkled, covered with longish white hair; clypeus almost transverse at the apex, the sides rounded; antennal tubercles projecting, longer than broad; vertex excavated above the antennæ; ocelli raised. Mesonotal sutures distinct. Petiole with the central portion raised; the apex of the raised part transverse; the base depressed; on either side is a broad furrow, which has a few transverse, and not very distinct, keels; bordering this is a raised carina which is separated from the side by a furrow, the outer

side being at a lower level than the keel. Down the centre of the second segment is a broad flat keel, broadest at the base and united to the raised apical part at the apex; at the base of this keel is a broad semicircular depression, which is deepest down the side; at the apex of the keel is a curved furrow (very shallow in the centre) which, at the side, bifurcates into two, the basal portion running to the extreme edge of the segment, the other not reaching so far, and being also broader; at the base of the third segment is a transverse groove. The abdomen is not much longer than the head and thorax together, broad in the middle, narrowest at the apex. The middle fascia in the fore wing is between the transverse basal and the first transverse cubital nervures, but does not touch the former on its lower side; the latter is interstitial. There is no central fascia in the hind wings.

B. *Suturiform articulation longitudinally striated.* (Species 12–14.)

a. *Wings with a fuscous band in the middle; legs yellow.* (Species 12 & 13.)

12. **Iphiaulax peronatus.**

Luteus; capite, antennis, abdominis apice, prosterno, apice tarsorum anterioribus, apice tibiarum posticarum tarsisque posticis, nigris; alis flavo-hyalinis, apice fasciaque medio fuscis, stigmate flavo. ♀.
Long. 12 millim.; terebra 8 millim.

Hab. PANAMA, David in Chiriqui (*Champion*).

Antennæ stout, microscopically pilose, the scape shining, with a few punctures, and bearing sparse longish hair. Head with rather long whitish hair, the face rugose; vertex shining, impunctate, depressed in the centre below the ocelli, from which a deep furrow runs to the antennæ. Thorax shining, impunctate, sparsely covered with longish white hair; the oblique furrow below the tegulæ broad, deep. The tongue-shaped centre of the petiole separated from the sides by a very deep and broad furrow. A broad, deep, oblique depression on each side of the base of the second segment; in the centre at the base is a small triangular raised field, which is prolonged as a thin sharp carina to the apex; the separation between the second and third segments deep, broad, and reticulated, a broad and deep transverse furrow at the base of the latter. The abdomen is broader than the thorax, broad at the base, becoming broader to the apex of the third segment, then narrowed towards the apex, which is pilose. Legs longish, densely pilose; apices of the hind tibiæ, the hind tarsi entirely, and the four anterior tarsi at the apex, black; hind spurs fuscous-black. The middle fascia in the fore wing commences at the transverse basal nervure, and extends to the base of the stigma, going obliquely across the first cubital to the recurrent nervure; in the hind wings it is in a line with the cloud in the fore wings; the apical cloud commences a little beyond the apex of the stigma, touching the upper, but not the lower, part of the second transverse cubital nervure; in the hind wings it is much smaller. The second cubital cellule is distinctly shorter than the third.

13. **Iphiaulax zapotensis.** (Tab. XIV. fig. 2, ♀.)

Niger; abdominis segmentis 1°–4ᵐ pedibusque luteis; apice tibiarum posterioribus tarsisque posterioribus, nigris; alis flavo-hyalinis, apice fasciaque medio fuscis, stigmate flavo. ♀.
Long. 10 millim.; terebra 7·5 millim.

Hab. GUATEMALA, Zapote (*Champion*); PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ longer than the body, densely covered with microscopic pile, the scape with scattered longish hair; shining; third joint a little longer than the fourth. Head sparsely covered with longish pale hair; face finely punctured; vertex shining, impunctate, slightly depressed in the centre; a furrow proceeding from the ocelli to the antennæ. Thorax shining, impunctate, sparsely covered with pale hair; the oblique suture below the tegulæ deep. The furrows surrounding the tongue-shaped centre of the petiole broad, not very deep. Second segment with a large, oblique, deep depression on each side; a carina runs down the centre, having its origin in a small triangular field at the base; the furrow at the apex broad and deep, obscurely reticulated, and ending on each side in a deep triangle, which runs in the direction of the larger lateral depression issuing from the base. The depression at the base of the third segment is narrow. Legs pilose, the hind spurs yellow. The wings are coloured as in *I. peronatus*, except that, if anything, the clouds are darker and extend more into the stigma, while the second cubital cellule is wider and somewhat shorter.

b. *Wings fuscous only at the apex; legs for the greater part black.* (Species 14.)

14. **Iphiaulax pulchripes.** (Tab. XIV. fig. 3, ♀.)

Luteus; antennis pedibusque nigris; coxis, femoribus posticorum dimidio basali basique tarsorum posticorum, rufis; alis flavo-hyalinis, apice fumatis, nervis stigmateque flavis. ♀.
Long. 10·5 millim.; terebra 9 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ longer than the body, microscopically pilose; third and fourth joints subequal. Head covered with longish pale hair; face finely punctured; vertex shining, impunctate, not depressed above the antennæ; a deep furrow leads down from the antennæ; tips of the mandibles piceous. Thorax shining, impunctate. Petiole depressed at the base; two wide furrows along the sides, the inner one the shortest and widest. In the centre of the second segment is a raised field, which curves round to a point, and is prolonged as a broad keel to the transverse groove; the latter is broad and longitudinally striated, the lower bifurcation being also striated; the furrow in the third segment is also longitudinally striated. Cubital nervure roundly curved at the base; the second cubital cellule considerably shorter than the third. The joints of the tarsi (especially of the anterior and posterior pairs) are reddish; the spurs are black.

The group of I. CHAMPIONI.

The keel on the second segment broad at the base (not dilated), becoming gradually narrowed towards the apex of the segment, which it reaches; the bordering depressions deep, moderately wide; the lateral furrow narrow, bordered by a sharp keel on the inner side. A keel on the third segment (broad and triangularly dilated at the base, narrowed towards the apex), the bordering depression wide, shallow. Apical branch of the suturiform articulation curved, longer than the basal. Thorax flat above; the apex of the petiole raised above it. Abdomen a little longer than the head and thorax united, becoming dilated to the apex of the third segment. The second cubital cellule shorter than the third, wide; the cubital nervure rounded upwards at the base. Luteous; the head, legs, and prosternum black; wings with the apex and a fascia below the stigma smoky. (Species 15 & 16.)

The keel on the third segment makes this a very distinct group.

15. **Iphiaulax championi.** (Tab. XIV. fig. 4, ♀.)

Luteus; antennis, capite, prosterno pedibusque, nigris; geniculis tarsisque anterioribus testaceis; alis flavo-hyalinis, fascia medio apiceque fumatis, stigmate nigro. ♀.

Long. 12 millim.; terebra 11 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ scarcely so long as the body; the third joint longer than the fourth, curved laterally, and dilated at the base. Head broader than long in front, the face punctured; clypeus transverse at the apex, not gaping much; a furrow between the antennal tubercles; front depressed above the antennæ; a thin carina running down from the ocelli, which are surrounded by a furrow. Thorax narrow, longish, flat on the upper side, the metanotum not being much depressed below the mesonotum, from which it gradually recedes. Scutellum perfectly flat, not raised above either the meso- or meta-notum, and bearing some punctures. Pleuræ somewhat compressed. Petiole with a somewhat pear-shaped (the base, however, is too transverse) area, bounded by a wide and deep depression, except at the base, where the depression is scarcely noticeable; the narrow apex of this depression becoming confluent with the raised apical portion; along the side of the latter is a keel, with a furrow on its outer side. In the centre of the second segment is a heart-shaped depression, enclosing a somewhat triangular raised part in the centre; along the side is a furrow, curved at the base. In the centre of the third segment is a triangular carina (broadest at the base), and from the base a broad oblique furrow runs to each side; at the base of this segment is a semicircular or curved furrow, irregularly reticulated. In the centre of the fourth segment is a large depression, with a stout keel in the middle; a smaller depression also on the fifth, but

this latter has no keel. The abdomen is longer than the head and thorax together, and becomes gradually narrowed towards the apex. The tibiæ and tarsi are densely covered with pale hair; the apices of the four front tarsi are black.

16. **Iphiaulax imitatrix.** (Tab. XIV. fig. 13, ♀.)

Long. 12 millim.; terebra 11 millim.

Hab. Panama, Bugaba (*Champion*).

I am not quite sure but that this is only a form of *I. championi*; the chief distinction lies in the form and structure of the abdomen: it is a little shorter and broader; the petiole is much more vertical, its top being higher than the mesonotum, while in *I. championi* it is lower, and is almost on a level with the rest of the abdomen; there is neither depression nor keel on the fourth segment, while in *I. championi* there is in its centre a large depression, with a keel down the middle, like that on the third, only narrower; the fifth segment in *I. championi* has also a depression. In coloration the two are almost identical. The clouds in the wings are much darker in *I. imitatrix* than in *I. championi*.

The occurrence of these two forms in the same locality makes me think that it is possible there may be some variation in the furrows, keels, &c. on the abdomen, or rather that in some individuals these parts may, through immaturity, be much less developed than in others. This is a point, however, which can only be tested by the examination of a large series of specimens.

The group of I. gloriatorius.

Keel on the second segment triangular, bordered by a deep and wide furrow; the lateral furrow oblique; a deep fovea on either side of the apex of the petiole. Suturiform articulation narrow, impunctate; the apical branch roundly curved, reaching to near the middle of the segment, which is contracted in the middle above. Abdomen, if anything, shorter than the head and thorax united. The curve of the oral region wide, of nearly equal depth throughout, the centre of the clypeus being but slightly emarginate; above the latter is a rather deep ∩*-shaped indentation. Luteous; the head, the prosternum, the apex of the abdomen, and the greater part of the legs, black.* (Species 17 & 18.)

In coloration this group agrees with that of *I. sciarius* and *I. championi*; from the former (which it resembles in the form of the suturiform articulation) it differs in the keel on the second segment being triangular; from the latter in there being no keel on the third segment; and from both in the clypeal incision being much less strongly marked.

17. **Iphiaulax gloriatorius.** (Tab. XIV. fig. 1, ♀.)

Luteus; capite, prosterno, abdominis apice pedibusque, nigris; antennis fuscis, geniculis, tibiis tarsisque anterioribus, testaceis; alis fusco-hyalinis, stigmate nigro, bifasciatis; articulatione suturiformi recta. ♀.
Long. 8 millim.; terebra fere 8 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ covered with a close stiff pile, moderately stout, tapering towards the apex. Face opaque, finely punctured, the sides densely pilose. There is a semicircular furrow bounding the central part of the front, which has no furrow in the middle leading down from the ocelli. The central part of the petiole is bounded by a sharp keel, and has a depression on either side at the apex; and in front of these are two shallow depressions meeting at the apex. The central keel on the second segment is twice as long as wide, and is bordered on either side by a wide and deep furrow, these furrows not being united to the lateral ones. Suturiform articulation straight; the apical branch issuing from near the middle; curved, scarcely reaching to the side of the segment. The middle cloud in the fore wing occupies the first cubital cellule, but is narrowed obliquely towards the posterior side of the wing; the apical cloud is broader than the central one; the recurrent nervure is interstitial.

18. **Iphiaulax frugalis.**

Long. 10 millim.

Hab. PANAMA, Bugaba (*Champion*).

Very similar to *I. gloriatorius*, but larger and stouter; the antennæ much stouter and thicker; the depression on the front much deeper (being a regular depression rather than a semicircular furrow surrounding a central part); the head more globular; the central keel on the second segment wider and shorter (not being double the length of the base); the petiole flatter; the clouds in the fore wings much darker in tint, and the central one wider and not narrowed posteriorly; the four anterior tibiæ, and the greater part of the tarsi, black; the legs also stouter.

The group of I. HECTOR.

The keel on the second segment in the form of an elongated triangle; the lateral furrow oblique, originating from the base, deep, wide; suturiform articulation usually finely longitudinally striated. Wings blackish, or fuscous, wholly or in part; the stigma ochreous. (Species 19–24.)

The black wings with ochreous stigma makes this division easily recognized.

A. *The base of the wings and a fascia below the stigma yellow. Suturiform articulation not striated. Body and legs entirely rufous.* (Species 19.)

19. **Iphiaulax hector.** (Tab. XIV. fig. 5, ♀.)

Ferrugineus; antennis verticeque nigris; alis flavo-hyalinis, fascia medio apiceque fuscis, stigmate flavo. ♀.
Long. 14 millim.; terebra 7 millim.

Hab. Panama (*Boucard*).

Antennæ scarcely so long as the body, microscopically pilose. Face rugose; vertex largely depressed between the ocelli and the antennæ, the depression reaching to the eyes and blistered; ocelli surrounded by a depression which is rounded at the apex, but narrower there than at the base; a furrow leads down from the depression to the antennæ. Thorax smooth, shining, impunctate; scutellum not much raised above the mesonotum, but considerably so above the metanotum; the base transverse, the apex narrowed and rounded. Petiole largely and deeply depressed at the base; two broad and deep furrows along each side, the inner one the widest, and both separated from the basal depression. Second segment with two deep curved depressions on each side, and, in the centre, a depression enclosing a triangular field; the transverse furrow at the apex is deep, and, at the sides, curves back to join the lateral depression, and from its centre another and wider depression runs to the side in the opposite direction. The transverse furrow in the third segment is slightly wider than that in the second. The apical cloud in the fore wings commences at the apex, and the middle one ends at the base of the stigma, the latter commencing a very little beyond the transverse basal nervure; in the hind wings the cloud commences opposite the base of the middle cloud in the fore wings; second cubital cellule slightly shorter than the first, the third being nearly as long as the other two united.

B. *Wings entirely black.* (Species 20–24.)

* *Abdomen impunctate.* (Species 20–23.)

a. *Thorax red.* (Species 20–22.)

α. *Legs entirely rufous.* (Species 20.)

20. **Iphiaulax guatemalensis.** (Tab. XIV. fig. 8, ♀.)

Luteus; antennis capiteque nigris; alis fumatis, stigmate flavo. ♀.
Long. 12 millim.; terebra 6 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Antennæ stout, microscopically pilose; third joint nearly double the length of the fourth. Face rugose; vertex aciculate, not depressed above the antennæ; ocelli surrounded by a narrow furrow, which is rounded at either end, but broadest at the base; a furrow runs down to the antennæ. Thorax shining, impunctate; scutellum longer than broad, narrowed towards the apex. Petiole depressed in the middle at the base; two

furrows along the side, the outer one reaching to the extreme base and shallower than the inner. Second segment with a broad depression on either side; in the centre are two furrows uniting not far from the suturiform articulation; into the latter runs from each side, obliquely, and joining it not far from the middle, a somewhat narrower furrow; the central furrow itself is striated, as is also the transverse one at the apex of the next segment. Legs covered with a white pubescence; apices of the tarsal joints fuscous. Palpi pilose, black; tips of the mandibles piceous. Below the base of the stigma is a curved hyaline cloud occupying the greater part of the cubital cellule and the angle formed by the recurrent and cubital nervures.

β. Legs more or less black. (Species 21 & 22.)

21. **Iphiaulax calderensis.** (Tab. XIV. fig. 6, ♀.)

Rufo-testaceus; capite, antennis pedibusque anterioribus, nigris; tibiis tarsisque posticis fuscis; alis fuscis, coste testaceo, stigmate ochreo. ♀.

Long. 11 millim.; terebra 6 millim.

Hab. Panama, Caldera in Chiriqui 1200 feet (*Champion*).

Antennæ as long as the body, perceptibly tapering towards the apex, covered with a close pile; basal joint longer than the third and fourth joints united, thick, shining, scarcely transverse at the apex. Head below the antennæ densely covered with long, stiff, silvery-white hair; front and vertex shining, almost glabrous; front broadly, but not deeply, hollowed; the central furrow moderately deep. Eyes roundly oval, widely distant from the base of the mandibles; projecting, the head retreating considerably behind them. Thorax shining, the sides and metanotum sparsely covered with short depressed hair; metanotum with a gradual slope to the apex, the sides faintly punctured. Petiole abruptly, deeply excavated at the base; the central part tongue-shaped, widest at the apex, which is transverse; the inner furrow wide, moderately deep; there are four transverse keels at its apex; the outer furrow is hidden under the stout, separating keel. Second segment with the raised area reaching a little beyond the middle, and becoming narrowed gradually to a point at the apex, and bounded by a not very deep furrow, which is finely rugose; the lateral furrow goes obliquely from the base of the central raised part to the sides, but does not reach the apex. Suturiform articulation moderately deep, faintly aciculated; the second furrow is narrower, the third furrow a little narrower than the second. Legs pilose, less so on the femora than on the tibiæ and tarsi; black, the apex of the hind coxæ beneath and entirely so above and laterally, the base of the trochanters, and the underside of the femora, red. Wings dark fuscous, the stigma bright ochreous-yellow, palest below the costa; there is an oblique white cloud in the first cubital cellule which is continued in front of the transverse basal nervure; the latter is received in an angle in front of the first transverse cubital nervure.

22. **Iphiaulax godmani.** (Tab. XIV. fig. 7, ♀.)

Ferrugineus; antennis, capite, pedibus anterioribus, tibiis tarsisque posticis, nigris; alis nigris, stigmate ochreo. ♀.

Long. 12 millim.; terebra 6·5 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ stout, longer than the body, microscopically pilose; third joint distinctly longer than the fourth. Head densely pilose, finely rugose in front; vertex opaque, aciculate; a furrow, broadest at the base, leads down from the vertex. Thorax shining; metapleuræ punctured. Petiole deeply depressed at the base; the inner furrow very broad and deep, shorter than the outer one, the space between them in the form of a sharp ridge. Second segment with an oblique depression on each side; down the centre is a smooth, shining, raised field, ending gradually in a sharp point not far from the suturiform articulation, the space on each side of it being rough. Suturiform articulation wide, longitudinally striated, except the lower bifurcation; the other groove much narrower.

Differs from *I. calderensis* in being longer and broader; the furrow on the front much broader and deeper, especially at the base; the wings much blacker in tint, with the costa entirely black; the abdomen broader; the head broader; and the colour of the body of a much deeper ferruginous tint.

b. *Thorax for the greater part black.* (Species 23.)

23. **Iphiaulax rufo-plagiatus.**

Niger, maculis mesonoti, linea læte metanoti abdomineque, rufis; pedibus nigris; alis nigris, stigmate ochreo. ♀.

Long. 11 millim.; terebra 6 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ stout, shorter than the body, almost bare. Head below the antennæ and laterally densely covered with pale hair; the face finely punctured; frontal furrow wide, moderately deep. Abdomen about one fourth longer than the thorax, not bulging out in the centre. Petiole curved, deeply excavated at the base; the inner furrow very wide, impunctate, and without carinæ, the outer one narrow, placed under the keel. The area in the second segment nearly reaches, and becomes gradually narrowed, to the apex, and is bordered by a depression; this latter is coarsely, transversely striated, and united with the lateral depression, which is deep, oblique, and not striated. Suturiform articulation finely striated, except at the apices of the lateral branches. The furrow on the third segment is finely striated. The stigma is ochreous, except at the extreme apex; there is a hyaline stripe in the first cubital nervure; the cubital nervure is scarcely curved at the base; the recurrent nervure is received in front of the first transverse cubital nervure; the second cellule is shorter than the third. There is a small red mark on each side of the mesonotum; the line on the metanotum is broad and placed in the middle; the apex of the abdomen inclines to blackish.

** *Abdomen punctured.* (Species 24.)

24. **Iphiaulax brachyura.**

Rufus; antennis, capite, prosterno, mesosterno pedibusque, nigris; alis nigris, stigmate ochreo. ♀.
Long. 9 millim.; terebra 1·5 millim.

Hab. PANAMA (*Boucard*).

Face closely punctured, covered with longish white hair; front not depressed; a longitudinal furrow running down from the ocelli. Thorax flat above; the metanotum rather long, with a gradual and very gentle slope to the apex; sides and breast covered with longish white hair. Petiole with the inner furrow broad and shallow. Second segment with the central area at the base triangular, but prolonged at the apex into a sharp broad keel; the lateral depression broad and deep at the apex; the transverse groove broad, striated, the basal fork narrow and not very distinct; on the raised central part, in front of the transverse groove, are some shallow punctures; the part beyond the suturiform articulation more strongly and closely punctured. Third segment not so strongly nor closely punctured, the sides aciculated. Apical segments hairy, blackish.

The group of I. SUAVIS.

Keel on the second segment short, broader than long, not reaching to the middle; surrounded by a broad, but not very deep, depression; the lateral depression wide, oblique, not very deep. Inner furrow of the petiole wide, and with some transverse keels. Suturiform articulation shallow, not striated; the apical branch much wider than the basal one, which latter is not clearly defined. Abdomen longer than the head and thorax united, becoming gradually thinner from the second segment; the segmental divisions deep; the apical ventral segment not ploughshare-shaped. Head small, narrow, not much developed behind the eyes, the latter oval. Abdomen red; head and thorax black; wings black, the stigma ochreous. (Species 25 & 26.)

The colour of the wings and stigma brings this group near to the preceding; but the structure of the second segment separates the two, the area being triangular and broader than long; and the thorax is entirely black.

1 (2). Wings entirely black . . . . . *suavis.*
2 (1). Wings with the basal third subhyaline . . . . . *piliventris.*

25. **Iphiaulax suavis.**

Niger; abdomine rufo, apice nigro; alis nigris, stigmate flavo. ♀.
Long. 11–12 millim.; terebra 2–2·5 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*); PANAMA, Taboga Island (*Champion*).

Antennæ as long as the body, microscopically pilose. Head depressed, broadly but not deeply, above the antennæ, the sides of the depression striated obliquely, the stria-

tion sometimes obsolete; face closely but not coarsely punctured, bearing longish hair. Thorax shining, impunctate, the sides covered with longish hair. Petiole deeply depressed at the base; the inner furrow broad, but not very deep, and with a few transverse broad keels in the middle; the outer keel deeper and crenulated. Second segment with a triangular furrow in the centre, the apex of which reaches a little beyond the middle; laterally (but not reaching to the base) are two oblique deep depressions, which sometimes bear two transverse keels; the transverse furrow broad and shallow, especially shallow in the middle. Suturiform articulation shining, impunctate; the basal branch shallow, indistinct. The furrows on the third and fourth segments impunctate; the fifth segment in part and the apical six segments are black. Stigma ochraceous at the base; in the first cubital cellule there is an oblique cloud, which is continued into the first discoidal cellule.

26. **Iphiaulax piliventris.** (Tab. XIV. fig. 9, ♀.)

Niger; abdominis segmentis 1°–4^{m} rufis; alis nigris, basi fere hyalinis, stigmate nigro, basi ochraceo. ♀. Long. 12 millim.; terebra fere 3 millim.

Hab. PANAMA (*Boucard*).

Antennæ stout, of nearly equal thickness, microscopically pilose. Head densely covered with longish hair, whitish on the face, fuscous on the vertex; broadly excavated above the antennæ; ocelli surrounded by a furrow; face aciculated. Pleuræ and metathorax covered with long pale hair. Petiole excavated at the base; the inner furrow commencing at the end of the excavation, from which it is clearly separated, about three times longer than wide, and with two transverse keels in the centre; the outer furrow half the width of the inner one, the separating keel sharp; the central part a little longer than wide. There is a shining, impunctate, triangular area in the centre of the second segment at the base, surrounded by a furrow, which is widest and deepest at the apex, and is continued as a wider oblique furrow down the side. Suturiform articulation wide and moderately deep, not striated; the furrow on the third segment deep, especially at the side, the one on the fourth segment narrow, but fully as deep.

Differs from *I. suavis* in having the abdomen broader; the depression surrounding the area on the second segment continuous, and not on the apical part only, its deeper apical part being also much less in size; the basal third of the wings subhyaline (those of *I. suavis* being uniform in tint), and the base of the stigma more broadly ochraceous.

The group of I. PERSECUTOR.

Keel on the second segment dilated at the base, the remainder sharp, narrow, reaching nearly to the suturiform articulation; the space on either side of it but slightly depressed, and marked with some stout striations; the lateral furrow oblique. Suturiform articulation wide, strongly longitudinally striated; the second furrow deep and usually striated. Body reddish, the head and legs black; wings blackish. (Species 27–33.)

A. *No keel on the side of the second segment dividing the oblique depression into two.* (Species 27–32.)

1 (2). Abdomen narrow, longer than the head and thorax united; second cubital cellule on the lower side longer than the third cellule; the second segment not striated on either side of the keel; wings smoky; terebra nearly as long as the thorax and abdomen united . . . . . *abaculus.*

2 (1). Abdomen broad, not longer (or scarcely longer) than the head and thorax united, the second segment more or less striated on either side of the keel.

3 (4). Stigma testaceous; wings lightly smoky; the second segment punctured on either side of the striated central part . . . . *argentifrons.*

4 (3). Stigma black or fuscous; wings dark smoky; the second segment not punctured.

5 (6). Second segment strongly striated to the apex; wings with a dark cloud at the apex . . . . . *persecutor.*

6 (5). Second segment not strongly striated to the apex; wings without a dark cloud at the apex.

7 (8). The second furrow in the abdomen broad and crenulated; stigma light testaceous on the lower side . . . . . *aztecus.*

8 (7). The second furrow narrow, not crenulated; stigma black.

9 (10). The basal part of the keel on the second segment nearly as long as broad; the petiole with an oblique slope; abdomen as long as the head and thorax united . . . . . *montezuma.*

10 (9). The basal part of the keel on the second segment much broader than long; petiole with almost a vertical slope; abdomen not much longer than the thorax . . . . . *chontalensis.*

a. *The second furrow in the abdomen crenulated.* (Species 27–29.)

27. Iphiaulax persecutor.

Ferrugineus; capite, antennis, prosterno pedibusque, nigris; alis fumatis, apice fusco; apice abdominis segmento 2° striolato. ♀.

Long. 10 millim.; terebra 6 millim.

Hab. GUATEMALA, El Reposo 800 feet (*Champion*).

Antennæ longer than the body, microscopically pilose, tapering distinctly towards the apex. Head densely covered with longish white hair, except on the vertex; front but little depressed; a very deep and moderately wide, shining furrow running down to the antennæ and a little below them; the sides bordering the furrow semiopaque, obliquely striated. The breast, pleuræ, and metanotum sparsely covered with longish white hair; the metanotum with a rather abrupt, sharp slope. Petiole semiperpendicular; the keel separating the furrows sharply erect, large, the inner furrow the widest and with a few stout transverse striations; a longitudinal keel on the apical part of the central space, which is aciculated on each side of the keel. Second segment depressed laterally, coarsely longitudinally striated; a stout keel down the centre; suturiform articulation broad, deep, the upper fork much narrower and shallower than the lower, coarsely longitudinally striated to the apex; second furrow narrower, deep; the part behind this smooth, shining, impunctate, and much lower than the apex of the preceding segment; third furrow nearly as wide and deep as the second, but shorter, becoming united to the segment a little beyond the middle; the apex of the segment raised, so that there is a furrow behind it. Wings smoky, the apical third blackish; cubital cellules wide, the second much shorter than the third; the recurrent nervure almost interstitial. Mandibles reddish, the tips black.

Differs from *I. aztecus* in being larger and stouter; the antennæ stouter; the abdomen wider and much more strongly striated; the third segment striated throughout; the suturiform articulation also striated at the sides; the ovipositor longer; and the cubital cellules wider.

28. **Iphiaulax aztecus.** (Tab. XIV. fig. 10, ♀.)

Rufo-testaceus; capite, antennis, prosterno pedibusque, nigris; apice abdominis segmento 2° vix striolato; alis fumatis, stigmate testaceo. ♀.

Long. 8 millim.; terebra 4 millim.

Hab. Mexico, Orizaba (*Bilimek*).

Antennæ longer than the body, tapering towards the apex; third joint about one fourth longer than the succeeding one; microscopically pilose. Face and the sides of the head densely covered with long white hair; front scarcely depressed above the antennæ, semiopaque, aciculated; a deep furrow leading down from the ocelli. Breast, sides, and metathorax covered sparsely with longish pale hair; metanotum with a gradual slope. Inner furrow of the petiole wide, moderately deep, closely punctured; the outer furrow much narrower and somewhat deeper. Second segment with a few coarse longitudinal striæ at the base; two oblique deep depressions laterally, and a stout keel down the centre; first transverse furrow wide, deep, strongly longitudinally striated, the basal fork narrower than the apical one; second furrow narrower, but as deep, stoutly crenulated; third furrow obsolete. Wings slightly fuscous; stigma testaceous on the lower side; the recurrent nervure interstitial.

29. **Iphiaulax argentifrons.** (Tab. XIV. fig. 11, ♀.)

Ferrugineus; antennis, capite, prosterno pedibusque, nigris; alis fusco-hyalinis, stigmate testaceo. ♀.
Long. 8 millim.; terebra 4 millim.

Hab. GUATEMALA, Capetillo (*Champion*).

Antennæ stout, scarcely tapering towards the apex. Head with the face, back, and sides covered with rather long pale hair; the face coarsely obliquely punctured; vertex and front semiopaque, finely punctured; no furrow running down from the ocelli. The two furrows on the petiole lie parallel, are finely punctured, wide, and moderately deep, the inner furrow wider than the outer; centre of the petiole pitted. Second segment with an oblique depression on each side, irregularly reticulated; a small shining space at the base in the middle, from which proceeds a longitudinal keel; first transverse furrow very broad, coarsely longitudinally crenulated, the lateral branches short; second furrow narrower, also crenulated, running laterally backwards towards the base of the segment; third furrow deeper, shining, impunctate. Wings light fuscous, the stigma testaceous, the nervures fuscous; recurrent nervure nearly interstitial.

A broader species than *I. aztecus*; the wings lighter in tint; the recurrent nervure not interstitial; the antennæ stouter; the head much more densely clothed with hair, especially above the antennæ; the second segment wrinkled and striated throughout, and the central keel narrower. The knees, the apical joint of the trochanters, the base and apex of the hind coxæ, and the apices of the fore tarsi are testaceous.

b. *The second furrow not striated.* (Species 30–32.)

a. *The sides of the second segment on either side of the keel striated.* (Species 30 & 31.)

30. **Iphiaulax montezuma.** (Tab. XIV. fig. 12, ♀.)

Ferrugineus; capite, antennis, prosterno pedibusque, nigris; abdomine quam thorax longiore; alis fuscis, stigmate nigro. ♀.
Long. 10 millim.; terebra 5 millim.

Hab. MEXICO (*Bilimek*).

Antennæ a little longer than the body, moderately stout, tapering towards the apex. Head sparsely clothed with hair; face finely aciculate. Thorax impunctate, the breast and metathorax pilose. Petiole with the furrows very broad; the outer furrow narrowed at the base, the inner one obscurely pitted, the keel separating the two stout, oblique, and covering the outer furrow at the base; the centre with a keel down the middle; the sides somewhat rough. Second segment with an oblique depression on each side; a keel down the centre, originating in a broad, smooth, shining space; the surface roughened, with a few longitudinal irregular keels; first transverse furrow broad and deep, longitudinally coarsely striated, the middle as deep as the sides; apical fork deeper than the basal one; second transverse furrow deeper than the first, but narrower. The depression at the base of the fourth segment deep, narrower than the second

furrow. Wings dark smoky, the stigma dull fuscous, lighter on the lower side; the recurrent nervure interstitial.

31. **Iphiaulax chontalensis.**

Flavo-testaceus; capite, antennis pedibusque nigris; alis fere fumatis, apice fuscis. ♀.
Long. 8 millim.; terebra 5 millim.

Hab. Nicaragua, Chontales (*Janson*).

Face coarsely punctured, covered (as are also the sides) with longish white hair; front scarcely depressed; a deep furrow going down from the ocelli. Petiole with the inner furrow wide, shining, impunctate, curving round, and much widened at the base, so that the centre is somewhat triangular at the apex; outer furrow narrower, deep. Second segment with a deep oblique depression on each side; a keel down the centre (but not reaching to the apex) arising from a broad base, and with a deep depression on each side, and a few oblique striations. Suturiform articulation wide, deep, coarsely longitudinally striated, the lateral branches narrow; second transverse furrow much narrower, becoming united to the base of the segment a little before the sides are reached, coarsely striated; the third furrow much shallower.

Differs from *I. montezuma* in being smaller, the wings darker at the apex; the petiole subvertical, the abdomen shorter, the basal part of the keel on the second segment longer; the second segment not distinctly striated at the base, the second furrow deeper and waved; and the colour of the body lighter and (especially the abdomen) of a yellower hue.

β. *The oblique depressions on the second segment impunctate and not striated, the segment itself not striated; suturiform articulation only striated in the middle. The second cubital cellule longer than the third, at least on the lower side.* (Species 32.)

The long and comparatively narrow abdomen of this species separates it readily from the others recorded here.

32. **Iphiaulax abaculus.** (Tab. XIV. fig. 23, ♀.)

Rufo-testaceus; antennis, capite, prosterno pedibusque, nigris; alis fumatis, stigmate nigro; antennis longis. ♀.
Long. 9 millim.; terebra 7 millim.

Hab. Costa Rica, Cache (*Rogers*).

Antennæ nearly as long as the body, slightly microscopically pilose, of nearly equal thickness throughout. Face and sides of the head covered with long white hair; front but slightly depressed in the middle; the furrow rather broad and shallow. Head not much developed behind the eyes (which are large, oval, and margined), and narrowing

sharply posteriorly. Sides of the thorax sparsely covered with long white hair; mesonotal sutures moderately well defined; the metathorax with a gradual slope to the apex. Abdomen as long as the head and thorax united; a little wider than the mesothorax; becoming a little dilated to the end of the third segment, then gradually narrowed to the apex; the petiole semiobliquely raised from the base. Petiole excavated at the base, the central part raised, roundly contracted at the apex; a furrow in its centre at the base; the inner furrow wide and deep and commencing a little in front of the middle, the outer one longer and much narrower. Second segment with the basal part of the central keel broader than long and sharply narrowed towards the apex; the keel proper narrow and not reaching quite to the apex, and with a narrow, not very clearly defined, furrow on either side; the lateral furrow oblique, wide, and deep. Suturiform articulation wide, not very deep; indistinctly crenulated; the basal branch straight, oblique, the apical branch curved. The furrow on the third segment is narrow and not very deep. Wings longish, light fuscous; the nervures and stigma blackish-fuscous; the second cubital cellule long, narrow, nearly as long as the third, and of almost equal width throughout.

B. *A stout longitudinal keel on the side of the second segment, dividing the oblique depression in two; the second segment not striated, impunctate, the second furrow narrow, shallow, impunctate; thorax flat, much narrower than the abdomen; wings almost hyaline, the apex darker.* (Species 33.)

33. **Iphiaulax canescens.**

Thorace luteus; abdomine testaceo, antennis, capite pedibusque, nigris; alis longis, fumatis, apice fere fusco, stigmate nigro. ♀.

Long. 10 millim.; terebra 10 millim.

Hab. NICARAGUA, Chontales (*Janson*).

Head sparsely covered with longish white glistening hairs; face opaque, finely striated (so far as can be made out through the hair); two deep depressions (longer than broad) above the antennæ, separated by a broad keel going down from the ocelli; a short acute depression below the antennæ; palpi fuscous. Thorax longish, the sides parallel, not bulging out in the middle, and not much narrowed at the base and apex; above flat, the metanotum with very slight and gradual slope to the apex; the prosternum and metathorax covered with long white glistening hair; metapleuræ obscurely punctured. Abdomen not much longer, but much wider, than the thorax. Petiole flat in the centre; a depression on each side at the apex, the centre there raised somewhat, and with a longish oblique depression on each side of the raised part; the inner keel of the inner groove acute, very broad and deep, the outer keel obliterated. Down the centre of the second segment is a distinct keel, dilated at the base; there is an oblique depression on each side of it, bounded by an acute keel; on the outer side of this is a

longish, deep, semioblique furrow. Suturiform articulation broad, moderately deep, crenulated; an oblique furrow of half its width runs to the side; the side also crenulated, but not so strongly. Wings longish, smoky, darker at the apex. Thorax rufous; abdomen of a yellower and lighter tint.

The group of I. QUADRIPUNCTATUS.

Body red, the head, the prosternum, the apex of the abdomen from the fourth segment, and the legs, black; wings deep fuliginous; antennæ black, longer than the body. Petiole shining, impunctate. Area on the second segment rounded at the base, becoming gradually narrowed to a little beyond the middle, then abruptly narrowed, so that the basal half is much wider than the apical half; on either side of this narrowed part is an elongated fovea; there is a shallow, narrow depression on either side of the basal part, this depression leading into the lateral one, which is wide and moderately deep. Suturiform articulation smooth, impunctate, not striated. (Species 34.)

Differs from the group of *I. volcanicus* in the form of the area on the second segment, and in having two foveæ on the petiole.

34. **Iphiaulax quadripunctatus.** (Tab. XIV. fig. 25, ♂.)

Rufus; antennis, capite, prosterno, abdominis segmentis 4°–7ᵐ pedibusque, nigris; alis longis, fuliginosis. ♂ ♀. Long. 13·5 millim.; terebra 12 millim.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Antennæ stout, as long as the body; third joint contracted towards the base, a little longer than the fourth. Head broadly depressed above the antennæ; face opaque, shagreened; sparsely covered with pale hairs. Petiole raised in the middle, the base depressed; two elongated oval punctures placed side by side in the middle towards the centre; the inner furrow broad, especially at the apex; the outer furrow narrower and placed lower down, and with a pair of keels down the centre. Second segment raised in the centre at the base, the raised part becoming narrowed gradually to the apex (it reaches a little beyond the middle of the segment); at its apex is an elongated puncture on each side, these being nearly double the length of those on the petiole, but they are not so clearly defined and separated at the base; along the side is a depression, curved at the base; the suturiform articulation is shining, impunctate, bifurcating in two at the sides, and not very deep in the middle; there is a narrow transverse groove at the apex of the segment.

In the male the raised part on the second segment is more acutely pointed at the apex, and narrower generally than in the female; and the punctures at the apex are not, at the base, separated at all from the lateral depression.

The group of I. BASIMACULA.

The keel on the second segment in the female broad, gradually narrowed to the apex (which is not acute), reaching to the apical third of the segment, and bordered by a depression; in the male narrow, raised, dilated at the base, and not bordered by a furrow. Suturiform articulation broad, bifurcating near the middle, obscurely striolated at the edges, especially in the male. Body and legs black, except the basal segments beneath in the female, and sometimes above in the male. Wings black. (Species 35.)

If I have correctly united the sexes, it would appear that the keel on the second segment may vary in form in the sexes of the same species.

35. **Iphiaulax basimacula.** (Tab. XV. figg. 1, ♀, 2, ♂.)

Niger, abdominis basi sordide rufo; alis fuliginosis. ♂ ♀.
Long. 15–17 millim.; terebra 13–14 millim.

Hab. MEXICO, Valladolid in Yucatan (*Gaumer*); GUATEMALA, Zapote, San Gerónimo, Purula (*Champion*); PANAMA (*Boucard*), Caldera in Chiriqui 1200 feet, Tolé (*Champion*).

Antennæ stout, as long as the body, with upwards of seventy joints. Head covered with blackish hair, the face obscurely punctured; front depressed in the centre, the furrow narrow; eyes oval, bordered. Metathorax (especially at the sides) sparsely covered with rather long white hair. Abdomen a little longer than the head and thorax united, bulging out in the middle. Petiole with the central part narrowed at the apex; the base deeply depressed; two oblong shallow foveæ in the middle; the inner furrow moderately deep and broad, the outer furrow placed lower down on the opposite side of the keel. The oblique depression on the second segment is wide and moderately deep. The furrow on the third segment nearly straight, narrow, the other furrows invisible. The apex of the abdomen covered with longish black hair. Legs stout, densely pilose. Wings long; the recurrent nervure not interstitial; two small hyaline fasciæ in front of the latter, and one at its base behind.

In the male the central part of the petiole is not narrowed behind, and the furrow bordering it is much wider and not curved at the apex as in the female; there is an obscure keel on the third segment in the centre, and the furrow at its apex, and also that at the apex of the fourth segment, is wider and deeper. The upperside of the base of the abdomen is entirely black above, or the petiole and more or less of the second segment may be reddish.

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The group of I. VOLCANICUS.

The keel on the second segment slightly dilated at the base, the remainder acute, sharp; a wide hollow on either side of it; the lateral furrow angled in the middle. Suturiform articulation smooth or finely striated. The other furrows narrow, smooth, impunctate. Abdomen and sometimes part of the thorax red or yellow. Wings black. (Species 36–49.)

A. *Thorax and abdomen red; antennæ, head, prosternum, and legs black; wings fuscous. Suturiform articulation not striated.* (Species 36.)

36. **Iphiaulax volcanicus.**

Luteus, prosterno, antennis, capite pedibusque nigris; alis nigris. ♀.
Long. 13–14 millim.; terebra 8–9 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ less than three fourths of the length of the body, stout, not tapering much towards the apex; microscopically pilose; scape as long as the longitudinal diameter of the eye; apical joint very short, oblique. Face closely punctured, opaque; a furrow running down from the ocelli; the lower region and the sides of the head bearing a few longish hairs; palpi pilose, black. Thorax shining, impunctate. Petiole deeply excavate at the base; inner furrow wide, moderately deep, the outer furrow separated from it by a high and sharp ridge, the latter itself wider and situated on a lower level than the inner, especially at the base. Second segment with an indistinct keel down the centre at the base, and an oblique, broad depression on either side; the transverse keel broad, not very deep. Apex of the abdomen pilose.

B. *Abdomen honey-yellow, often black at the apex.* (Species 37–41.)

1. *Suturiform articulation crenulated.* (Species 37–40.)

a. *Wings smoky-hyaline, with a large fuscous cloud at the stigma and another at the apex. Apical joints of the palpi fuscous. The keel on the second segment becoming gradually narrower to the apex. Apical third of the abdomen black.* (Species 37.)

37. **Iphiaulax humerosus.** (Tab. XIV. fig. 14, ♀.)

Niger, abdominis segmentis 1°–4ᵐ flavo-testaceis; alis fere hyalinis, fusco-bifasciatis, stigmate nigro. ♀.
Long. 12 millim.; terebra 11 millim.

Hab. GUATEMALA, El Reposo 800 feet (*Champion*).

Antennæ as long as the body, stout, almost bare. Head shining and impunctate on the top; the face somewhat opaque, obscurely punctured, sparsely covered with long

fuscous hair; front depressed in the centre, the furrow rather deep. Petiole with the central part of nearly equal width from the base; the base depressed; the apex transverse; the inner furrow wide, deep, twice the width of the outer one. The keel on the second segment becomes gradually narrowed to the apex, and reaches nearly to the end of the segment; its basal part not distinct from the rest, and there is a shallow depression on either side of it; the lateral furrow wide, curved, and reaching to the apex. Suturiform articulation wide, crenulated in the centre, the lateral branches smooth. The furrow on the third segment is quite close to the base, and does not reach to the sides. The abdomen is a little longer than the head and thorax united, and becomes somewhat sharply narrowed from the third segment; the petiole rises gradually from the base. Fore wings with the cloud at the stigma not so long as the petiole, and contracted in the centre, the apical cloud commencing a little beyond the third cubital nervure; the second cubital cellule (at least on the lower side) a little longer than the third; stigma black, the nervures testaceous in the hyaline parts of the wings. Hind wings light smoky-hyaline, darker at the basal half.

b. *Wings uniformly smoky. The keel on the second segment dilated at the base; the dilatation distinct, so that the keel does not become gradually narrowed to the apex.* (Species 38–40.)

α. *No keel on the third and fourth segments. Palpi black. Abdomen becoming gradually thickened to the apex of the fourth segment, then somewhat sharply narrowed to the apex; a stout keel dividing the lateral depression on the second segment in two; the basal branch of the suturiform articulation nearly, if not quite, straight, the apical branch curved and reaching to, or a little beyond, the middle of the segment; the latter with a transverse depression at its apex; the furrow on the third segment not striated, curved.* (Species 38 & 39.)

1 (2). A **Y**-shaped keel on the petiole; anterior tarsi white . . . . . *fuscidens.*
2 (1). No **Y**-shaped keel on the petiole; anterior tarsi black . . . . *veræpacis.*

38. **Iphiaulax fuscidens.** (Tab. XIV. fig. 19, ♂.)

Niger, mesonoto strigaque metanoti sordide rufis, abdomine tarsisque anticis flavo-testaceis; alis fuscis. ♀.
Long. 11 millim.

Hab. Mexico (*Sallé*).

Antennæ as long as the body, tapering perceptibly towards the apex; microscopically pilose; the joints clearly separated; basal joint with a short petiole, shorter than the third and fourth joints united, the apex produced on the lower side. Cheeks coarsely and irregularly rugose, opaque, pilose; face smooth, shining; front deeply excavated; a furrow (wide at the base, gradually narrowed towards the apex), margined on either side, proceeding from the ocelli to the antennæ. Abdomen scarcely twice the length

of the thorax, smooth, shining, flat, the apex fully as wide as the base. Petiole deeply excavated on the basal third; the central part raised, and keeled on either side. Second segment with a keel in the centre, the latter doubled at the base, the two branches uniting about the basal fourth; the lateral depression semi-oblique, deep, narrow, and on the inner side bordered by a stout keel. Suturiform articulation situated at the base of the segment, wide, not very deep, and bearing about a dozen stout keels; from its middle two wide furrows run obliquely to the sides, where they become transverse and somewhat indistinct; a little in front of them is a narrow transverse furrow. At the base of the fourth segment is a curved transverse furrow, which gives origin near its middle to an oblique (but not so sharply oblique as that on the third) furrow.

39. **Iphiaulax veræpacis.** (Tab. XIV. fig. 15, ♀.)

Niger, maculis 2 mesonoti sordide rufis, abdomine flavo-testaceo; alis fumatis, stigmate nigro. ♀.
Long. 13 millim.; terebra 13 millim.

Hab. GUATEMALA, Purula (*Champion*).

Antennæ slightly longer than the body, tapering a little towards the apex; the flagellum covered with an ashy microscopic pile; the scape on the underside with long white hair. Head large; the face projecting in the middle; an oval depression (not very clearly defined) over the clypeus; the sides and the cheeks sparsely covered with white hair, the latter finely punctured. Antennal tubercles large, the space separating them deep; a longish depression, separated by a raised part in the centre of which is a fine furrow, over each antenna. Palpi fuscous towards the apex, and covered with white hair. Abdomen a little shorter than the head and thorax united; becoming gradually wider to the apex of the fourth segment, then narrowed again to the apex. Petiole excavated at the base; the raised central part transverse behind, the middle portion rounded at the apex, the former blistered and bounded by a sharp keel, the inner furrow being obsolete; the outer furrow placed lower down on the sides, and wide and deep. Second segment with a narrow and sharp keel which reaches nearly to the apex, and has a wide oval depression on either side of it; the lateral furrow oblique, not reaching nearly to the side of the segment, and bounded on the outer side by a sharp keel, beyond which is a narrower furrow; the extreme edge of the segment has a sharp margin, inside of which is a narrow furrow. Suturiform articulation wide, the central part bearing eight stout keels; basal branch obscurely crenulated, the apical branch narrower, more oblique, and reaching beyond the middle of the segment; at the apex of the segment is a narrow, shallow, transverse furrow which does not reach the sides. The furrow at the base of the third segment is narrow, and does not reach much beyond the middle; a similar furrow at the base of the fourth segment.

β. A keel in the centre of the third and fourth segments. Palpi white.
(Species 40.)

40. **Iphiaulax tinctipennis.** (Tab. XIV. fig. 16, ♂.)

Niger, abdomine flavo-testaceo; articulatione suturiformi striolata; alis fusco-violaceis. ♂.
Long. 11 millim.

Hab. Costa Rica, Cache (*Rogers*).

Antennæ longer than the body, the flagellum of almost uniform thickness; the basal joints clearly, the apical joints less distinctly, separated; covered with a close greyish pile. Head nearly as wide as the mesothorax, considerably developed behind the eyes; the latter large, margined, projecting laterally, and reaching to the base of the clypeus. Face covered with longish white hair, the centre aciculated; the furrow in front wide and deep, and also aciculated. Palpi testaceous. Pleuræ and sternum sparsely covered with long pale hairs. Coxæ and trochanters on the underside bearing long white hair. Abdomen longer than the head and thorax united. Petiole obliquely vertical; its central part raised, acute at the base, more rounded at the apex; the inner furrow wide and moderately deep, its margin in the form of an acute irregular keel; the outer furrow placed on a much lower plane than the inner one. Second segment with an acute keel reaching to the apical third, and a narrow furrow on either side; the lateral furrow wide, deep, and oblique. Suturiform articulation wide, moderately deep, and not very distinctly crenulated. Third segment with a narrow furrow as deep as the suturiform articulation; in the centre is a keel reaching to a little beyond the middle. Fourth segment with a keel similar to that on the second, but not quite so strongly marked, and scarcely reaching to the middle.

2. *Suturiform articulation not crenulated.* (Species 41.)

41. **Iphiaulax lævis.** (Tab. XIV. fig. 17, ♀.)

Bracon lævis, F. Smith, Descr. New Species of Hym. p. 234 (1879)[1].

Hab. Guatemala, San Gerónimo, Purula (*Champion*); Costa Rica, Cache[1] (*Rogers*).

Antennæ as long as the body, thick, scarcely tapering towards the apex, closely covered with a greyish pile; basal joint as long as the following three joints united, shining, bearing some longish black hairs. Head sparsely covered with longish black hairs; cheeks punctured; face aciculated; front and vertex shining, the former not much depressed in the centre and with the furrow wide and deep. Eyes oblong, reaching nearly to the apex of the clypeus, the head retreating sharply behind them. Thorax shining, impunctate, sparsely pilose; the metathorax with a gradually curved slope. Petiole oblique, its inner furrow wide and moderately deep; the apex of the central part somewhat acutely rounded. Second segment with a small raised triangular area at the base, from which a flat, not very clearly defined, keel proceeds to a little beyond

the middle; the lateral furrow oblique, wide, and not very deep. Suturiform articulation slightly curved, not very wide or deep, and shining, impunctate; the second furrow shallow.

C. *Abdomen, and the thorax more or less, vermilion-red.* (Species 42–49.)

1 (8). Suturiform articulation crenulated.
2 (7). Mesonotum, except a black line at the tegulæ, red.
3 (4). The depression on either side of the keel wide, deep, continuous with the oblique lateral one; the keel sharp, reaching quite near to the apex; ovipositor not much longer than the abdomen . . . . . *megaptera.*
4 (3). The depression on either side of the keel shallow, not continuous with the lateral one; ovipositor as long as the body.
5 (6). Face irregularly striated; lateral branches of the suturiform articulation striated . . . . . *abjectus.*
6 (5). Face not striated; lateral branches of the suturiform articulation not striated . . . . . *vagabundus.*
7 (2). Thorax entirely black . . . . . *bilimeki.*
8 (1). Suturiform articulation not crenulated or striated.
9 (14). Mesonotum in front red.
10 (11). Palpi black; pronotum, the greater part of the mesonotum, scutellum, and metanotum red; ovipositor longer than the body . . . . . *salvini.*
11 (10). Palpi white; mesonotum reddish in front.
12 (13). A stout keel in the middle of the suturiform articulation . . . . *infirmus.*
13 (12). No keel in the middle of the suturiform articulation . . . . . *fuscipalpis.*
14 (9). Thorax black . . . . . *gravidus.*

1. *Suturiform articulation crenulated.* (Species 42–45.)

42. **Iphiaulax megaptera.** (Tab. XV. fig. 5, ♀.)

Niger, mesonoto abdomineque rufis; alis magnis, fuliginosis; terebra quam corpus breviore. ♀.
Long. 10 millim.; terebra fere 8 millim.

Hab. Mexico, Tacubaya (*Bilimek*).

Face opaque, impunctate, sparsely covered with whitish hair; front broadly, but not deeply, depressed above the antennæ, without any central furrow; tips of the mandibles piceous. Antennæ stout, microscopically pilose; the third joint a little longer than the fourth, and narrowed in the middle. Thorax shining, impunctate. Metanotum with rather a steep slope from the middle. Petiole semiperpendicular; the two furrows on the same level, wide and deep, the outer one ending a little in front of the middle, the dividing partition stout. Second segment with a stout, broad keel down the centre, reaching nearly to the apex; a large oblong depression on each side of it, uniting at the base with a wider depression, which latter goes somewhat obliquely down the sides; transverse furrow moderately wide, stoutly, longitudinally striated, the apical branch

the longest and curved; the keel scarcely striated; the two hinder transverse furrows narrow and moderately deep. The apical segment deeply and widely depressed (perhaps accidentally) in the centre above. Wings very large, deep fuscous-black; the recurrent nervure interstitial; cubital cellules large and wide, the second much shorter than the third and with its upper and lower sides of nearly equal width at the apex.

This is the largest species in the section; it will readily be known from its allies by the characters given in the synoptical table, and also by the much darker and larger wings.

43. **Iphiaulax abjectus.**

Niger, pronoto, mesonoto, scutello abdomineque rufis; facie striata; articulatione suturiformi lateribus striolata; alis fuscis. ♀.

Long. 8 millim.; terebra fere 10 millim.

Hab. Mexico, Presidio (*Forrer*).

Antennæ stout, not much longer than the thorax and abdomen united; basal joint longer than the third and fourth joints together, its apex transverse. Face transverse, rugose, sparsely pilose; apex of the clypeus not projecting; front but very slightly depressed in the middle, rugose, the furrow narrow and of equal width; vertex shining, impunctate. Abdomen about as long as the head and thorax united. Petiole semi-perpendicular; the central part pear-shaped (the narrow end at the base); the inner furrow broad, straight, moderately deep, and bounded on the outer side by a sharp keel, the outer furrow narrower. Second segment with a sharp keel reaching to a little beyond the middle, and issuing from a broad base; a narrow furrow on either side of the keel curving round at the base into the oblique lateral depression, the latter being of moderate width. Suturiform articulation narrow, moderately deep, the basal branch half the size of, and shallower than, the apical branch; the second articulation narrower, situated quite close to the base of the segment.

44. **Iphiaulax vagabundus.** (Tab. XIV. fig. 20, ♀.)

Niger, medio mesonoti, scutello, pronoto abdomineque rufo; facie lævi; articulatione suturiformi lateribus non striata; terebra quam corpus longiore; alis fuscis. ♀.

Long. 10 millim.; terebra 12 millim.

Hab. Mexico, Presidio (*Forrer*).

Antennæ as long as the body, moderately stout, tapering towards the apex, the third joint a little longer than the fourth; covered with a pale microscopic pile. Head and palpi covered with a glistening white, rather long pubescence; face semiopaque, obscurely punctured; front depressed above the antennæ (but not deeply), finely rugose, opaque, the central furrow deep; tips of the mandibles piceous. Thorax impunctate, shining; sternum, pleuræ, and metathorax covered with long white hair. Petiole with the tongue-shaped central portion shining, impunctate; the two furrows

on a level, wide, moderately deep. A sharp keel down three fourths of the second segment; a narrow depression on either side of it, joined at the base to a much wider depression, the latter extending from the side; first transverse furrow wide and moderately deep in the centre, the lateral branches narrower; the basal fork straight, the apical one curved; second transverse furrow deep, straight, the third nearly obsolete.

This is a somewhat larger and stouter species than *I. abjectus*; the abdomen is longer compared to the thorax; the antennæ are somewhat longer and stouter; the hair on the metathorax is much denser and longer; and the black colour of the metathorax does not run into reddish as in *I. abjectus*. The head is not striated or wrinkled in any way, and the suturiform articulation is not so strongly striated.

45. **Iphiaulax bilimeki.**

Niger, abdomine rufo; alis fuscis. ♀.
Long. 8·5 millim.; terebra fere 4 millim.

Hab. Mexico, Orizaba (*Bilimek*).

Antennæ a little longer than the body; basal joint longer than the third, becoming gradually thicker towards the apex, the latter oblique. Head below the antennæ densely covered with long white hair; face nearly transverse; front but very slightly depressed in the centre; ocelli scarcely raised; the furrow leading down from the latter narrow, shallow. Abdomen not much longer than the thorax; wider than the mesothorax, and becoming narrower from the middle towards the apex. Petiole deeply excavated at the base; the central part nearly triangular (the narrow end at the base); the inner furrow wide and shallow, and bearing a few oblique striations, the outer furrow narrower and deeper. In the centre of the second segment is a stout keel (the broad basal part of which is triangular), occupying three fourths of the segment; the furrows bounding the keel shallow, the lateral depressions oblique and becoming wider towards the apex. Suturiform articulation wide, longitudinally striated in the middle; the basal branch narrower and deeper than the apical one; the second articulation not much more than half the length of the first, irregularly striated. Wings dark fuscous, darkest at the base; the second cubital cellule much shorter than the third.

2. *Suturiform articulation not crenulated or striated.* (Species 46–49.)

46. **Iphiaulax salvini.** (Tab. XIV. fig. 21, ♀.)

Rufus; antennis, capite, pleuris, sterno, mesonoti lateribus pedibusque, nigris; terebra quam corpus longiore; alis fuscis. ♀.
Long. 12 millim.; terebra 11 millim.

Hab. Guatemala, Cubilguitz in Vera Paz (*Champion*).

Antennæ stout, almost bare; the joints somewhat oblique at the apex; third joint a little longer than the fourth, the basal one nearly as long as the third and fourth together. Head densely covered with rather long white hair; the face opaque,

obscurely punctured; vertex shining; front scarcely depressed above the antennæ, the central furrow wide and deep. Thorax shining, impunctate. Abdomen more than one half longer, and scarcely broader, than the thorax; the segments deeply incised at the base. Petiole gradually sloping to the apex and not subvertical; the central tongue-shaped area shining; the inner furrow wide and deep, obscurely striated; the outer keel stout. Second segment with a stout keel down the centre reaching to beyond the middle; on either side of the keel deeply depressed, the depression becoming widened at the base and there continuous with another large, deep, oblique one; the transverse furrow wide, deep, bifurcating a little beyond the centre. The edge of the pronotum, the mesonotum (except at the tegulæ), the scutellum (except narrowly behind), and the metanotum broadly at the base, red. Wings smoky; the stigma fuscous on the lower side.

The long and comparatively narrow abdomen with rather flat petiole distinguishes this species from its allies. The hair is sparse but somewhat long.

47. **Iphiaulax infirmus.**

Niger, mesonoto abdominisque segmentis 1°–6^{m} ferrugineis; alis fumatis. ♂.
Long. 7·5 millim.

Hab. Mexico (*Bilimek*).

Head covered with long white hair, obscurely punctured; apex of the clypeus scarcely projecting; front but very slightly depressed; a deep crescent-shaped fovea in front of the ocelli. Abdomen longer than the head and thorax united, but scarcely so wide as the mesothorax. Petiole with the central part pear-shaped; the inner furrow wide and deep and separated from the outer one by a stout keel. Second segment with a stout keel running down the basal half, the keel not bordered by a distinct furrow; the lateral depression wide and deep, reaching beyond the middle. The suturiform articulation of moderate width and bifurcating quite close to the middle; the basal branch not much narrower than the apical one; the second and third articulations not much narrower than the first. The mesonotum is red in front of the scutellum, except a large black mark on each side in front of the tegulæ; the extreme apex of the abdomen black; the pilosity of the latter is rather sparse. The stigma on the lower side and the nervures towards the apex are fuscous.

48. **Iphiaulax fuscipalpis.**

Niger, mesonoto, linea pronoti, abdomineque ferrugineis; alis fumatis. ♂.
Long. 8·5 millim.

Hab. Guatemala, Capetillo (*Champion*).

Antennæ as long as the body, stout, scarcely tapering towards the apex; microscopically pilose; basal joint stout, not much shorter than the following three joints united. Face covered with long white hair, transverse, rugose; clypeus scarcely pro-

jecting; front finely rugose, the central furrow distinct; vertex obscurely aciculated. Abdomen a little longer than the head and thorax together. Petiole semiperpendicular; the central part narrow at the base, becoming gradually broader towards the apex; the inner furrow wide, moderately deep, impunctate, the outer furrow much narrower. Second segment with a sharp keel down the basal three fourths, the keel bounded by a narrow furrow; the lateral depression curved, of nearly equal width throughout. Suturiform articulation shallow, moderately broad; the second and third articulations much narrower.

A stouter and larger species than *I. infirmus*; the head and thorax much more densely and uniformly pilose; the abdomen wider, if not shorter; the lateral depression on the second segment deeper and reaching nearly to the apex; the central keel stouter; the transverse furrow on the apex of the second and third segments much less distinct. In both species the stigma and nervures incline to fuscous.

49. **Iphiaulax gravidus.** (*I. capetillensis*, Tab. XIV. fig. 24, ♂.)

Niger, abdomine ferrugineo; alis fumatis. ♂.
Long. 9 millim.

Hab. GUATEMALA, Cerro Zunil 4000 feet (*Champion*).

Antennæ as long as the body, tapering slightly towards the apex; basal joint produced at the apex beneath. Face transverse, semiopaque, aciculate, clypeus not projecting at the apex, front depressed in the middle, the furrow wide, finely rugose. Abdomen a little longer than the head and thorax together, not much wider than the mesothorax. Petiole semiperpendicular; central portion pear-shaped; the inner furrow narrow, its outer keel higher than the centre of the petiole, the outer furrow somewhat narrower. Second segment with a stout keel in the centre, the keel extending a little beyond the middle, the bounding furrows narrow; lateral depression oblique, deep. Suturiform articulation narrow; second articulation not much narrower than the first, and placed a little before the middle of the segment; the third articulation a little narrower than the second, and situated not so far forward.

The group of I. CRUENTATUS.

The area on the second segment wedge-shaped, longer than broad, the depression on either side of it narrow and not very deep, the surface of the latter rough; the lateral furrow oblique, straight; suturiform articulation longitudinally striated, as is also the next furrow. Abdomen vermilion, becoming narrower from the second segment. Antennæ and legs black; thorax rarely entirely black, usually the mesonotum in front of the scutellum and the edge of the pronotum are red. Wings blackish, the stigma and nervures at the apex usually more or less fuscous. (Species 50–54.)

The area on the second segment being broader and not prolonged into a keel, but

becoming gradually narrowed to the apex, sufficiently distinguishes this group from the preceding. The species are very uniformly coloured, deep vermilion.

1 (2). Thorax entirely black . . . . . *cruentatus.*
2 (1). Mesonotum in front of the scutellum red.
3 (4). Suturiform articulation striated . . . . . *teres.*
4 (3). Suturiform articulation impunctate.
5 (8). A raised area in the middle of the second segment at the base; the inner furrow on the petiole crenulated; metanotum red in the middle.
6 (7). The basal half of the wings much lighter than the apical half; the area on the second segment distinct, acute at the apex, not originating in the suturiform articulation . . . . . *excuratus.*
7 (6). The wings uniform in colour; the area on the second segment originating in the suturiform articulation and dividing it in two, not acute at the apex . . . . . *pugillator.*
8 (5). No area on the second segment; metanotum entirely black . . . . *paganus.*

50. **Iphiaulax cruentatus.** (Tab. XV. fig. 3, ♀.)

Niger, abdomine ferrugineo; terebra quam abdomen breviore; alis fuscis. ♀
Long. 9 millim.; terebra 4·5 millim.

Hab. Costa Rica, Cache (*Rogers*).

Antennæ nearly as long as the body, scarcely tapering towards the apex; covered with pale microscopic pile; basal joint as long as the second and third joints united, slightly dilated towards the apex, shortly pedunculated. Head densely covered with rather long grey hair; front but very slightly depressed, and with a narrow keel in the middle; face almost transverse; clypeus not projecting, not separated from the face. Pleuræ and metanotum covered with long white hair. Abdomen longer than the head and thorax united, a little broader in the middle than the mesothorax. Petiole shining, the central part becoming gradually broader towards the apex; the hinder furrows wide and deep. Second segment with the wedge-shaped area reaching nearly to the apex, the furrows bounding it irregular; the lateral depression wide and deep, not reaching to the apex of the central area. Suturiform articulation not very wide; the striations moderately strong in the middle, but becoming weaker towards the sides. The suture on the fourth segment a little narrower, and with the striation nearly as strong as on the first; the suture at the base of the fifth segment narrower and not so strongly striated. The colour of the abdomen is a bright vermilion. Wings rather long, narrow; of a uniform smoky colour throughout, except that the first cubital cellule is more hyaline; stigma obscure ochreous at the base.

51. **Iphiaulax teres.**

Niger, mesonoto abdomineque ferrugineis; articulatione suturiformi striolata; alis fuscis. ♀.
Long. 8 millim.; terebra 6 millim.

Hab. Mexico, Presidio (*Forrer*).

Head sparsely covered with pale hair below the antennæ; the face opaque, finely rugose, a little projecting in the middle; clypeus slightly projecting at the apex; front rugose, a little depressed in the centre, where there is no distinct furrow; vertex a little opaque, impunctate. Abdomen not much longer than the head and thorax united. Petiole with the central part narrowed a little at the base and apex; inner furrow wide, irregularly and obscurely rugose, the outer furrow not half its width. Second segment with a sharp area in the centre; the area longer than broad, ending in a sharp point a little beyond the middle, and bounded by a narrow furrow which joins the oblique and very much broader lateral furrow at the base; the lateral furrow not reaching to the apex of the central area. Suturiform articulation of moderate width, the second articulation more curved and narrower; the striation on the latter and on the furrow on the third segment not very strong. The apical segments are yellowish at the apex; the pronotum irregularly reddish on the border. Wings dark fuscous, the stigma black.

In this species the abdomen is shorter than in *I. excuratus*; the head more shining and more developed behind; the extreme upper edge only of the pronotum red; the wings darker and, if anything, longer; and the colour of the abdomen brighter. It is otherwise easily separated from that species by the area on the suturiform articulation being blunt at the apex, as well as shorter.

52. **Iphiaulax excuratus.** (Tab. XV. fig. 6, ♀.)

Niger, linea pronoti, mesonoto, scutello, striga metanoti abdomineque rufis; alis fumatis, basi fere hyalinis. ♀. Long. 8 millim.; terebra 7 millim.

Hab. GUATEMALA, near the city (*Champion*).

Antennæ a little longer than the body, very slightly attenuated towards the apex, almost bare; basal joint about as long as the third and fourth joints united. Head below the antennæ scarcely transverse, obscurely punctured; front not depressed. Abdomen wider and half as long again as the thorax. Petiole with the central part comparatively narrow, becoming gradually narrowed towards the apex, the latter transverse; the inner furrow moderately wide and deep, separated from the outer one by a stout keel, the outer border of the outer furrow being also stout. Second segment with a triangular keel in the centre, the keel reaching to a little beyond the middle; the lateral depression shallow, narrow, and scarcely reaching to the middle. Suturiform articulation wide, minutely striated, the lateral branches originating a little beyond the middle; from the centre runs a triangular raised area, surrounded by a furrow. The second and third articulations are distinct, but narrower than the basal one. The pronotum is almost entirely red; there is an obscure red mark below the tegulæ and below both wings; the metanotum has a large red mark in the middle. Wings smoky, the basal half much more hyaline than the apical half; stigma black, fuscous on the lower side.

Differs from *I. pugillator* in being a little longer; the abdomen longer and narrower compared to the thorax; the petiole not so much raised and its inner furrow not so strongly crenulated; there is no keel dividing the suturiform articulation in the middle, although there is a raised area in front of it; the thorax bears more red (the metanotum having a thin red line only in *I. pugillator*); and the wings are lighter in colour at the base.

53. **Iphiaulax pugillator.**

Niger, linea pronoti, mesonoto strigaque metanoti rufis, abdomine ferrugineo; alis fuliginosis. ♀.
Long. 8 millim.; terebra 6 millim.

Hab. Mexico, Presidio (*Forrer*).

Antennæ stout, microscopically pilose; basal joint pedunculated, curved, longer than the third and fourth joints together. Head sparsely covered with white hair, opaque, finely punctured; front not depressed, the central furrow narrow. Abdomen longer than the head and thorax united and much wider than the latter. Petiole deeply excavated at the base; the central part rounded at the apex; the inner furrow very wide, but not very deep, the outer furrow scarcely half its width. Second segment with an acute area (broad at the base, tapering towards the apex) in the centre, the area reaching to beyond the middle; lateral depression oblique, deep, not reaching to the apex of the central area. Suturiform articulation wide, moderately deep, the branches issuing a little beyond the middle of the segment; the second articulation curved, narrower than the first; the third articulation indistinct. The mesonotum in front of the scutellum, the edge of the pronotum, and a narrow line down the middle of the metanotum, red. Wings dark fuscous; the stigma black, fuscous on the lower side; the nervures fuscous at the apex.

54. **Iphiaulax paganus.**

Niger, macula pronoti, mesonoto abdomineque ferrugineis; alis fuscis. ♀.
Long. 6 millim.; terebra 5 millim.

Hab. Mexico, Presidio (*Forrer*).

Antennæ stout, microscopically pilose; scape distinctly pedunculated. Head covered with long white hair; obscurely, the face more strongly, punctured; face transverse; front scarcely depressed, the central furrow indistinct. Abdomen distinctly longer than the head and thorax united, somewhat wider than the mesothorax. Petiole with its central part wide, but narrowed at the base, the apex transverse; the inner furrow wide and separated from the narrower outer furrow by a wide keel. Second segment with an elongate triangular area in the centre, the area reaching a little beyond the middle; the lateral depression pear-shaped, reaching nearly to the apex, the latter being wider than the base and rounded. Suturiform articulation somewhat narrow, the basal

branch curved; the second articulation curved and narrower than the first; the third articulation still narrower. The mesonotum, and the edge of the pronotum irregularly, red. Wings smoky.

This is a smaller and narrower species than any of the preceding; the abdomen is longer and narrower, being distinctly longer than the head and thorax united, and becomes gradually narrower from the second segment.

ii. *Abdomen punctured.* (Species 55–68.)

The group of I. BIFOVEATUS.

Petiole with the central part narrow, the sides nearly as wide as the central part; raised, depressed at the base and apex; the depression at the base narrow and deep (the sides broad on either side of it), being clearly separated from the raised central part, the latter finely longitudinally striated. Area on the second segment shield-like at the base, longer than broad, narrowed laterally; a fine transverse keel at the apex, from which runs a narrow prolongation (also narrowed laterally and with a depression on either side of it), the latter not reaching to the apex of the segment. Lateral depression wide, semioblique, deep in the centre, and impunctate. Suturiform articulation wide, deep, finely striated in the middle; the basal branch indistinctly indicated; the apical branch wide, very deep at the base. Abdomen a little longer than the head and thorax united, not much wider than the thorax. Head narrow, considerably developed and narrowed behind the eyes, the latter oval and reaching nearly to the base of the mandibles. (Species 55.)

This group contains a single very distinct species.

55. **Iphiaulax bifoveatus.** (Tab. XV. fig. 9, ♀.)

Niger, pronoto, mesonoto abdomineque rufis; alis fuliginosis. ♀.
Long. 13 millim.; terebra 9 millim.

Hab. MEXICO, Ventanas 2000 feet (*Forrer*).

Antennæ stout, microscopically pilose, the joints closely united. Face sparsely covered with long white hairs, rugose; projecting broadly in front of the eyes, especially near the antennæ; a deep depression between the latter. Front deeply excavated, the excavation divided into two large oval foveæ by two keels which come down from the ocelli; the keels widely separated near the antennæ, but becoming closely united towards the centre. Ocelli placed on a raised triangle, surrounded by a shallow furrow. Eyes large, oblong, projecting. Thorax elongated, flat above; mesonotum without sutures; pronotum in the middle divided into two by a deep furrow. Scutellum flat, narrowed posteriorly. Metathorax elongated, having a gradual slope to the apex; the oblique lateral furrow deep and wide. Petiole longer than the second segment; a deep and

narrow furrow at the base, the sides on either side of the furrow finely obliquely striated; the central area raised, widened a little towards the apex; inner lateral furrow shallow, with three stout transverse keels in the centre; the outer furrow narrowed, and with some stout keels at the base; the space between the furrows flat, broad at the base, becoming narrowed gradually towards the apex; the central part finely longitudinally striated; the lateral part somewhat obliquely striated, except at the apex. Second segment with the area at the base shield-shaped and longer than broad, the sides retreating; at the apex of the area are two oval depressions, which are longer than broad, with the base acute and the apex more rounded; the lateral depression is wide and deep, and has a longitudinal keel at the apex; the central part bearing a few shallow punctures. Suturiform articulation wide and deep, striated in the centre. The furrow on the third segment deep, striated; in front of it the segment is coarsely rugosely punctured, except at the apex. The fourth segment bears some large shallow punctures; the fifth segment has but very few punctures.

The group of I. MOLESTUS.

The area on the second segment twice as broad as long, a broad depression on either side of it; the base of the segment on either side of the central area raised, and then depressed in front of the raised part; from the latter, from either side of the area, run stout keels; the segment itself more or less covered with small shallow punctures. Eyes not or scarcely reaching to the base of the oral circle. (Species 56–58.)

1 (4). Abdomen punctured throughout.
2 (3). Abdomen broadly black at the apex; lower half of the stigma and the nervures at the apex fuscous . . . . . *molestus.*
3 (2). Abdomen entirely rufous; stigma and nervures entirely black . . *pilosellus.*
4 (1). The basal one or two segments only punctured . . . . . *triangulator.*

56. **Iphiaulax molestus.** (Tab. XIV. fig. 22, ♀.)

Niger, abdominis segmentis 1°–3^{m} rufis; alis fuliginosis, basi fuscis. ♀.
Long. 11 millim.; terebra 7 millim.

Hab. GUATEMALA, Capetillo (*Champion*).

Antennæ longer than the body, tapering towards the apex, stout; basal joint nearly as long as the third and fourth joints (which are subequal) united, becoming gradually thickened towards the apex, the latter transverse. Head covered with long white hair; the face somewhat projecting in the middle; the clypeus not projecting at the apex; the front depressed in the middle, the longitudinal furrow rather wide; ocelli but slightly raised. Abdomen longer than the head and thorax united, wider than the mesothorax in the middle, becoming narrowed from the third segment. Petiole a little

longer than broad, the surface a little roughened; the central part of nearly equal width; the inner furrow wide and deep, with a few transverse keels, its outer border forming a stout keel; the outer furrow a little wider, and placed on a lower level than the inner. Second segment with a shining area in the centre at the base; the area broad at the base, broader than long, and prolonged to the apex as an acute keel; on either side of this keel, bounded by the base of the segment, is a depression which at the base bears some stout keels; the apex irregularly punctured. Suturiform articulation wide and deep, occupying one third of the segment, and strongly longitudinally striated, the striations being continued on both the lateral branches; the second articulation is not half the width of the first, but is fully as deep. The segments are punctured, the punctures rather shallow and not closely set together.

A larger and stouter species than *I. pilosellus*; the antennæ and terebra longer; the antennal tubercles much more developed; the wings lighter in tint, and with the lower half of the stigma and the apical part of the nervures fuscous; the abdomen broadly black at the apex; the inner furrow of the petiole much broader, and with a few stout transverse keels, the outer furrow still broader; the puncturing on the segments not so strong; and generally the abdomen not so pilose.

57. **Iphiaulax pilosellus.** (Tab. XV. fig. 7, ♀.)

Niger, abdomine rufo; alis fuscis. ♀.
Long. 10 millim.; terebra 4·5 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Antennæ as long as the thorax and abdomen united, stout, microscopically pilose, tapering towards the apex; the joints clearly separated; the basal joint nearly as long as the third and fourth united, its apex produced on the underside. Head densely covered with long white hair; the face and cheeks rugose; the front aciculated, laterally depressed in the middle, the basal half of the furrow double the width of the apical half. Abdomen one half longer than the thorax, covered (much more distinctly on the basal half) with large punctures. Petiole with the central part of nearly equal width; an obscure keel down the middle; the inner furrow narrow and bordered by stout keels on both sides, the outer furrow wider at the apex. Second segment with a stout keel, on either side of which is an oblong depression; the lateral depression oblique, widened at the apex. Suturiform articulation wide, the branches originating not far from the sides; strongly longitudinally striated; the second and third furrows near the base of the segment narrower and not so strongly striated.

58. **Iphiaulax triangulator.**

Niger; abdomine ferrugineo, basi punctato; alis fuliginosis. ♀.
Long. 9·5 millim.; terebra 4 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Antennæ stout, not longer than the thorax and abdomen united; basal joint pedunculated, a little longer than the third and fourth joints together, becoming gradually dilated towards the apex. Head densely covered with white hair; face transverse, the clypeus not projecting; eyes margined; the front depressed in the middle, its central furrow wide; ocelli not raised; mandibles piceous at the apex. Abdomen a little longer than the head and thorax together, wider than the latter. Petiole semiperpendicular, the central part rough in texture and of nearly equal width; the inner and outer furrows crenulated, the inner one wider than the outer. Second segment with a somewhat triangular area; the area bounded by a wide coarsely striated depression, which is united to the oblique lateral depression without becoming narrower. Suturiform articulation of moderate width, its basal branch narrower than the apical one; the second articulation narrow, and placed a little before the middle of the segment; the third articulation a little narrower, placed near the base of the segment, and smooth, not obscurely striated like the second. The abdomen is entirely red, except the extreme apex. Wings large, dark fuscous; stigma and nervures fuscous; the cubital nervure straight, scarcely bent at the base. The apical two joints of the palpi are fuscous.

Most nearly allied to *I. pilosellus*, but narrower and not so pilose (especially on the head and metathorax); the abdomen, from the third segment, bears no punctures, and is much more shining.

The group of I. LACTEIFASCIATUS.

Second segment with a triangular area, the area a little longer than wide, the hollow on either side of it crenulated; the lateral furrow oblique, not striated; the base not raised; somewhat strongly punctured. Eyes not reaching to the base of the oral region. Wings more or less marked with hyaline spots. Antennæ longer than the body, filiform. (Species 59 & 60.)

The area longer than broad, the wings not uniformly fuscous, and the much longer and thinner antennæ separate this section from *I. molestus* and its allies.

1 (2). Abdominal segments uniformly punctured; the third and following segments black at the apex, the others dull red; wings black at the base, lacteous at the apex, the stigma entirely black; thorax but slightly hairy, the hairs black . . . . . *lacteifasciatus.*

2 (1). Abdominal segments not uniformly punctured; only the apical segments black, the others bright red; wings black at the base, the first cubital cellule subhyaline, the stigma ochraceous; thorax densely pilose, the hairs white . . . . . *divinator.*

59. **Iphiaulax lacteifasciatus.**

Niger, abdominis basi segmentisque 2° et 3° lateralibus ferrugineis; alis fuliginosis, apice lacteis. ♀.
Long. 8 millim.; terebra 4 millim.

Hab. Mexico (*Bilimek*).

Antennæ longer than the body (being nearly 11 millim. in length), filiform, microscopically pilose; basal joint thick, semioblique at the apex, more than twice as long as the second. Face finely rugose; front aciculated; vertex shining, impunctate; eyes large, oval, reaching nearly to the apex of the clypeus. Thorax shining, impunctate, sparsely pilose, the metathorax with but few hairs; the hairs black and rather long. Petiole semivertical, deeply excavated at the base, the excavation occupying nearly half the total length; the central part rounded at the apex; it bears a few punctures; the inner furrow wide, deep, with one or two indistinct transverse keels. Second segment with the area small; the area longer than broad, pointed at both ends (but much more acutely so at the apical end), and prolonged as a sharp keel nearly to the apex, and having a broad, moderately deep, depression on either side; the base raised, shining, impunctate; the lateral depression oblique, broad, deepest towards the apex, where there is a broad raised irregular keel. Suturiform articulation broad, stoutly keeled; the lateral branches not striated, short, the apical one much the widest; the two central keels converging at the apex and united to another rather stout one, which latter reaches a little beyond the middle of the segment. The first and second furrows are moderately deep, the first twice the width of the second. The segments are raised at the apex, depressed at the base, and rather strongly punctured (except at the apex, where the punctuation is weaker), the punctures somewhat large and clearly separated. The abdomen is longer than the head and thorax united, and becomes gradually narrower from the hinder part of the second segment to the apex. Wings rather long; the apical cloud extending from the apex of the stigma, and there is a darker oblique cloud in the first cubital cellule.

60. **Iphiaulax divinator.**

Niger, abdomine rufo; alis fumatis, basi fusco-hyalinis. ♀.
Long. 8 millim.; terebra 2·5 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Antennæ longer than the body, tapering towards the apex; basal joint not much longer than the second and third joints together, and of nearly equal width. Head densely covered with long white hair; the face nearly transverse; the front depressed, but not deeply so; ocelli raised; clypeus not projecting at the apex; tips of the mandibles piceous. Thorax pilose, very densely so on the metathorax; the hair white. Abdomen broader and not much longer than the thorax. Petiole semiperpendicular, dilated at the apex; the central part obtusely keeled towards the apex and obscurely punctured;

the inner furrow sharply keeled on the outer side, wide, and crenulated, the outer furrow scarcely so wide (except at the apex), but, if anything, deeper. Second segment with a triangular area in the centre, the area surrounded by wide furrows, which are strongly ribbed; the lateral depression wide and deep. Suturiform articulation wide and deep, the striations strong, the basal branch rather weak; the second articulation as wide, and, if anything, deeper, the third of much the same width and depth; the following segments shining and impunctate, their apices raised; the furrows finely longitudinally striated. The puncturing is strongest on the third and fourth segments; on the others it is rather weak and irregular. The apical segments are blackish and covered with black hairs. Wings fuscous, subhyaline behind the transverse basal nervure, and also in the first cubital nervure and immediately below it; the stigma black, the extreme base ochraceous; the cubital nervure a little curved at the base; the recurrent nervure scarcely interstitial. Apical joint of the palpi white.

The group of I. REPENTINUS.

The area on the second segment usually closely punctured, its base rounded, its apex triangular and running into a keel, the latter reaching nearly to the apex of the segment and without a depression on either side of it; the apical part of the segment rugose or rugosely reticulated; the lateral furrow broad, oblique, shining, rugosely striated. The entire abdomen closely, rugosely punctured; the furrows broad, and strongly longitudinally striated. Eyes large, reaching to below the level of the base of the clypeus. (Species 61–63.)

This group chiefly differs from the preceding in the narrower more triangular area on the second segment, and in the transverse furrows being deeper, wider, and striolated.

1 (4). The area closely punctured; thorax entirely, and the palpi, black.
2 (3). Petiole coarsely rugosely punctured; abdomen entirely red, not much longer than the head and thorax united . . . . . *repentinus*.
3 (2). Petiole not coarsely punctured, and with two foveæ near the apex; abdomen longer than the head and thorax united . . . . . *rixosus*.
4 (1). The area shining, impunctate; pronotum and the sides of the mesonotum red, the palpi white . . . . . *egregius*.

61. **Iphiaulax repentinus.**

Niger, abdomine rufo; terebra quam corpus breviore; alis fumato-hyalinis, apice fuscis. ♀.
Long. 8 millim.; terebra 5 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ microscopically pilose, tapering towards the apex; the basal joint as long as the second and third joints united. Head covered with a silvery-white pile; face

finely punctured, the punctures hidden by the pile; sides of the front aciculated, the centre depressed and with an obscure furrow. Abdomen not much longer than the head and thorax united; coarsely punctured throughout. Petiole with the central part widened towards the apex; inner furrow wide, the outer one not half its width. Second segment with a sharp keel running down the centre, the keel issuing from a 4-angled area at the base; the lateral depression sharply oblique, wide and deep, and not reaching to the middle. Suturiform articulation wide, strongly longitudinally striated; the second articulation scarcely so wide, but deeper, the third articulation narrower and scarcely as deep.

62. **Iphiaulax rixosus.**

Niger, abdominis segmentis 1°–6ᵐ ferrugineis; alis fuscis. ♀.
Long. 10 millim.; terebra 8 millim.

Hab. NICARAGUA, Chontales (*Janson*).

Antennæ stout, microscopically pilose; basal joint short, thick, of equal width. Face coarsely punctured, projecting in front of the eyes, covered with short white hair; front a little depressed in the middle, and without a furrow in the centre. Abdomen nearly twice the length of the thorax, becoming gradually wider towards the middle, and thence to the apex narrowed; coarsely punctured all over. Petiole with the central part broad, and not much enlarged towards the apex; the inner furrow wide, shallow, and finely and closely punctured, the outer furrow a little narrower. Second segment with a triangular area in the centre at the base, the area continued as a keel nearly to the apex; the lateral depression wide, deep, oblique. Suturiform articulation wide, curved, the branches issuing not far from the side; finely punctured; the second and third articulations of nearly equal width.

63. **Iphiaulax egregius.**

Niger, linea pronoti, lineis 2 mesonoti, trochanteribus ex parte, geniculis abdominisque segmentis 1°–5ᵐ rufo-ferrugineis; alis fumatis, stigmate fusco. ♂.
Long. 8 millim.

Hab. MEXICO, Presidio (*Forrer*).

Antennæ a little longer than the body, densely covered with a whitish pile; the scape more shining and more sparsely clothed with hair; its basal joint as long as the third and fourth joints together, not produced at the apex, and of nearly equal width throughout. Head densely covered with long white stiff hair; the face apparently punctured; front and vertex shining, impunctate, the former depressed in the middle, but not deeply so. Thorax thickly covered (especially on the sides) with long white hair; shining, impunctate. Abdomen longer than the head and thorax together. Petiole with the apical part of the central division rounded, rugose; the inner furrow

wide, especially at the apex; the keel stout, acute. Second segment with the area broader than long; the area smooth and shining, acute at the apex, the keel reaching nearly to the suturiform articulation; strongly rugosely (more strongly than the third and fourth segments) punctured. Suturiform articulation wide, deep, coarsely striated; the furrow on the third and fourth segments not quite so wide and deep, rugose. The apical segments not strongly punctured; the sixth segment largely red laterally.

The group of I. SONORENSIS.

The abdominal segments in the middle or at the apex broadly depressed and striated, the rest shining and impunctate; the area on the second segment broader than long, shining, impunctate; the lateral area oblique, very wide, shining, indistinctly striated. Abdomen longer than the head and thorax (nearly double the length of the thorax) united; becoming gradually broader to the fourth segment, but not broader than the thorax; vermilion-red, the edge of the pronotum, and the mesonotum in front, red. (Species 64.)

This group is readily distinguished by the very wide and deep striolated furrows on the abdomen, the latter longer than the head and thorax united; and also by the long and narrow body. It contains a single species.

64. **Iphiaulax sonorensis.** (Tab. XV. fig. 4, ♀.)

Niger, linea pronoti, macula ad basin mesonoti abdomineque rufis; alis fuliginosis. ♀.
Long. 9 millim.; terebra 7 millim.

Hab. MEXICO, Northern Sonora (*Morrison*).

Antennæ as long as the body, almost glabrous; third joint distinctly longer than the fourth; basal joint not much longer than the third, thick, oblique at the apex. Head below the antennæ densely covered with long white hair; the face nearly transverse, finely punctured; the clypeus very slightly projecting at the apex; the front scarcely depressed, the central furrow narrow. Pleuræ and sides covered with long white hair. Abdomen much longer than the head and thorax together, towards the middle a little wider than the mesothorax. Petiole raised in the centre at the apex, the base deeply and broadly depressed; the central part keeled in the middle; the inner furrow moderately wide and deep and curved, the outer furrow narrower. Second segment with a keel running down the centre to a little beyond the middle, the keel starting from a somewhat triangular area; on either side of the keel deeply depressed (especially near the side) and irregularly and strongly striated. Suturiform articulation very wide, occupying more than half the segment; its centre broadly raised in the middle; the apical branch much wider than the basal one and finely striated.

The group of I. AVARUS.

The abdomen closely but not very coarsely punctured; broader than the thorax, not tapering much towards the apex; shorter than the head and thorax united. Ovipositor shorter, or at least not much longer than the abdomen. Legs black; head and thorax more or less black. (Species 65–68.)

The absence of a keel or area on the second segment distinguishes this group.

1 (2). Head and thorax entirely black, except the orbits, the edge of the pronotum narrowly, and two lines on the mesonotum, which are red . . . . . *avarus.*
2 (1). Head and thorax for the greater part rufous.
3 (4). Front striated; stigma and nervures fuscous; thorax on the underside, and the metanotum in part, black . . . . . *mexicanus.*
4 (3). Front not striated; thorax beneath for the greater part, or entirely, rufous; stigma black; head mostly rufous.
5 (6). Hind coxæ entirely rufous; mesosternum without black . . . . *bellicosus.*
6 (5). Hind coxæ black, except at the extreme base; mesosternum broadly lined with black . . . . . *jucundus.*

65. **Iphiaulax avarus.** (Tab. XV. fig. 11, ♀.)

Niger, linea pronoti, lineis 2 mesonoti orbitisque oculorum sordide rufis; abdomine flavo-testaceo; alis fumatis, stigmate nigro. ♀.
Long. 6 millim.; terebra 1·5 millim.

Hab. MEXICO, Northern Sonora (*Morrison*).

Antennæ moderately stout, covered with microscopic pile; the third joint distinctly longer than the fourth; the basal joint nearly as long as the third, oblique at the apex. Face densely covered with long glistening white hair, punctured; the clypeus not projecting at the apex, and not separated by a furrow; front depressed in the middle; the latter, as well as the vertex, aciculated, opaque. Thorax shining, impunctate; the breast, pleuræ, and metanotum densely covered with long white hair. Petiole semiperpendicular, excavated at the base; the sides separated from the central part by deep and wide furrows. The abdomen not much longer than the thorax, ovate, the segments longitudinally striated. Suturiform articulation wide, deep, also longitudinally striated.

66. **Iphiaulax mexicanus.**

Niger, orbitis, linea pronoti, lineis 2 mesonoti, striga metanoti abdomineque flavo-testaceis; alis fusco-hyalinis, stigmate fusco. ♀.
Long. 8 millim.; terebra 2 millim.

Hab. MEXICO, Northern Sonora (*Morrison*).

Antennæ as long as the body, stout, almost glabrous. Head, thorax, and palpi covered with rather long glistening white hair; the head obscurely punctured; the thorax impunctate, shining. Mandibles testaceous, the tips blackish. Abdomen closely punctured all over, covered with short stiff pile. Petiole with the central part somewhat triangular and truncated (not narrowed) at the apex; the base sharply depressed; the inner furrow narrow, shallow, placed at some distance from the edge. Second segment with an obscure depression on either side; the suturiform articulation wide, not much bent, bifurcating near the edge. The furrow on the third segment as wide as the suturiform articulation, that on the fourth narrower. Abdomen scarcely so long as the head and thorax united; broad, becoming gradually narrower towards the apex, the latter blunt. Apical nervures of the wings fuscous; the stigma testaceous on the lower side; the recurrent nervure interstitial.

67. **Iphiaulax jucundus.** (Tab. XV. fig. 10, ♀.)

Flavo-testaceus, antennis, vertice, maculis 3 mesonoti, mesosterno pedibusque nigris; alis fumatis. ♀.
Long. 6 millim.; terebra 15 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ nearly as long as the body, moderately stout, microscopically pilose; first joint three times the length of the second; third joint a little longer than the fourth. Palpi black, covered with white hair; tips of the mandibles black. Face covered with long white hair, finely rugose, a transverse black mark above the centre; front and vertex shining, impunctate; the front above the antennæ depressed, the depression distinctly margined at the top, and with a furrow running down its centre, the two lateral spaces rounded on either side of the furrow. Petiole strongly punctured, the punctures above large and clearly separated; the inner furrow very wide and shallow, the outer furrow narrower and deeper and ending a little in front of the middle, where the petiole itself commences to widen. Abdomen coarsely punctured, much wider than the thorax, rounded at the apex; an oblique wide depression on either side of the second segment at the base, the part immediately behind the depression shining, impunctate; first transverse furrow wide, its basal branch narrow, shallow, the apical branch the width of the furrow itself; second furrow narrow and, like the first, longitudinally striated. The upper half of the head (except the orbits narrowly), the prosternum, a mark on each side of the mesosternum, the mesonotum in front, the legs (except at the joints), and the bases of the hind coxæ, are black.

68. **Iphiaulax bellicosus.** (Tab. XV. fig. 13, ♀.)

Flavo-testaceus, antennis, vertice pedibusque nigris, coxis posticis basique femorum rufis; alis fumatis, stigmate nigro. ♀.
Long. 8·5 millim.; terebra fere 2 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Very like the preceding species, but longer and broader; the antennæ stouter; the face more strongly punctured; the front above the antennæ not so deeply depressed, the depression not so distinctly margined at the top, nor so clearly divided into two by the furrow; the metanotum shorter, and with a much steeper slope. The petiole is broader compared with its length, more perpendicular, and not so much on a line with the rest of the abdomen; its centre more strongly punctured; the inner furrow narrower and deeper, the outer furrow longer and continued to the base (not originating from the apex as in *I. jucundus*, but a little from the middle). The abdomen longer compared with the thorax, but otherwise as in *I. jucundus*, except that the punctuation is stronger. The four anterior legs are black, their joints red; the hinder pair have the apices of the femora, the tibiæ, and the tarsi, black, the rest red. The vertex is broadly obscured with black, the black running into the red; the mesonotum in front is obscure black.

iii. *Abdomen strongly striated.* (Species 69.)

The group of I. MENDICUS.

Abdomen closely and regularly longitudinally striated, the second segment more irregularly and more strongly so; the petiole strongly reticulated; the area shining, impunctate, broader than long; the lateral depression shallow, strongly striated; the suturiform articulation shallow, striated, the striæ continuous, the lateral branches not clearly defined; the segments shining, and not striated at their apices, the latter each higher than the base of the succeeding segment. Head and legs black; the body and thorax obscure red, greatly suffused with black. (Species 69.)

69. **Iphiaulax mendicus.** (Tab. XV. fig. 8, ♀.)

Capite, antennis, palpis pedibusque nigris, thorace ferrugineo, abdomine fusco-rufo, orbitis oculorum testaceis; alis fuliginosis. ♀.

Long. 8 millim.; terebra 3 millim.

Hab. MEXICO, Northern Sonora (*Morrison*).

Antennæ microscopically pilose, the joints not clearly separated; basal joint thick, not much more than double the length of the second. Head shining, impunctate, covered sparsely with rather long hair; black above, whitish in the face; mandibles testaceous, blackish at the tips. Mesonotal lobes well developed; metanotum short, with a gradual oblique slope to the apex, the sides covered with long white hair. Petiole with the central part rugose and sharply rounded at the apex, the latter impunctate; the inner furrow broad, deep, transversely striolated. The area on the second segment and the sides behind the oblique depression shining, impunctate. The second, third, and fourth segments, except at their apices, strongly longitudinally striolated; the apical segment black. The wings have a violet tinge; the recurrent

nervure is interstitial; the second cubital cellule is nearly as long as the third. The legs are rather bare.

The following species differs from *Iphiaulax* and *Bracon* in the form of the body, and may perhaps form the type of a new genus. The thorax is long and flat above. The metathorax is especially long, and has a rounded, comparatively flat slope, and wide and deep lateral furrows; on the inner side of the furrow is a row of large foveæ, and a furrow runs down the centre of the metanotum. The abdomen is shorter than the thorax, and is sessile, the petiole being broad and scarcely narrower at the base. The suture between the petiole and the second segment is wide, deep, and transverse. The suturiform articulation is slightly curved; its basal branch straight, sharply oblique, and joined to the furrow at the base of the segment. The lateral depression on the second segment is absent. The last ventral segment is deeply incised. The legs are stout; the hind femora thickened; the tarsi a little shorter than the tibiæ; the metatarsus not much longer than the second joint. The wings are as in *Bracon*.

70. **Iphiaulax (?) multicarinatus.** (Tab. XV. fig. 12, ♀.)

Niger, abdominis segmentis 1°–5ᵐ rufis; alis fuliginosis. ♀.
Long. 12 millim.; terebra 5 millim.

Hab. NICARAGUA, Chontales (*Janson*).

Antennæ stout, tapering towards the apex, longer than the body; scarcely microscopically pilose. Face coarsely, rugosely punctured, and with an irregular hollow in the centre; the rest of the head smooth, shining. Thorax smooth, shining, the lateral suture canaliculated; metathorax at the lateral sutures marked with some large, round, shallow punctures; metanotum with two fine keels going down the centre, and at the apex bearing three depressions, the central depression shallow and somewhat triangular, the lateral ones larger, deeper, and oblong. Petiole broad, the central part raised and bordered by a rather wide furrow; longitudinally striated, except at the apex; separated from the second segment by a narrow and somewhat deep furrow, in front of which on either side is another oblique narrow furrow almost uniting it with the narrow and shallow suturiform articulation. In the centre of the second segment are two rather long keels, bordered by two shorter ones on either side. The remainder of the abdomen is smooth and shining. The recurrent nervure is interstitial; the second cellule is double the length of the radial nervure in front of the first transverse cubital nervure.

The described species of this section of Braconidæ from our region are only three in number; I prefer to place them here, as they may belong either to *Bracon* (sensu stricto) or to *Iphiaulax*.

Pl. 56

Bracon (?) vestitor.

Bracon vestitor, Say, Boston Journ. Nat. Hist. i. p. 254 [1] (♂); Complete Writings, ii. p. 706.

Hab. Mexico [1].

The following is the description:—

"♂. Body with very numerous, minute, prostrate hairs; head blackish, with dilated dull fulvous orbits; before the antennæ more prominent than above, and convex; antennæ dull yellowish; thorax dull fulvous, with three dilated black lines, of which the middle one is abbreviated before the middle; metathorax dusky; wings hyaline; tergum yellowish, somewhat polished towards the tip; lateral edge dusky; first segment at tip bisinuate or three-angled; feet paler; thighs a little dusky.

"Length three-twentieths of an inch."

Bracon (?) niger.

Bracon niger, Brullé, Hist. Nat. Ins. Hymén. iv. p. 395 [1].

"Niger; alarum posteriorum basi et anteriorum lineola angulata hyalinis; abdomine punctato, incisuris striatis. ♀.

"Long. 0·012; terebra 0·009.

"*Hab.* Mexico (*Ghiesbreght* [1]).

"Il est noir, avec le bord latéral des premiers segments de l'abdomen d'un châtain foncé. Les ailes sont noires; le base de celles de la seconde paire est transparente, ainsi qu'une petite ligne anguleuse au dessous du stigma des ailes de la première paire.

"Le face est finement ponctuée et pourvue d'une fossette profonde qui s'étend sur presque toute sa longueur. Le lobe moyen du mésothorax est un peu saillant; le métathorax est velu et présente en arrière une légère dépression sillonnée. Le lobe médian du premier segment de l'abdomen est plus ou moins ponctué en arrière et marqué de deux petites fossetes; il est séparé des bourrelets latéraux, qui sont comprimés, par un large sillon crénelé; une fossette profunde précède ce lobe médian. Le deuxième segment est rugueux et presque strié en avant, fortement ponctué en arrière, surmonté d'une carène longitudinale qu'accompagnent deux fossettes profundes et rides irregulièrement; les bourrelets latéraux sont ponctués et rides en long. Les segments 3–5 sont fortement ponctués; les tubercules latéraux du troisième segment sont ponctués et déformés en arrière par plusieurs fossettes. Le sillon d'intersection des segments 2 et 3 est très-large et fortement strié; le sillon transversal des segments 4 et 5 est distinctement strié. L'abdomen est en ovale élargi. Les valves de la tarière sont légèrement élargies à l'extrémité."

Bracon (?) fuscipennis.

Bracon fuscipennis, Brullé, Hist. Nat. Ins. Hymén. iv. p. 396 [1].

"Niger; thoracis dorsi anteriori parte abdomineque rubris, alis omnio fuscis; abdominis segmento 2° carinato, incisuris levibus. ♀.

"Long. 0·009; terebra 0·009.

" *Hab.* Mexico (*Mme. Sallé* [1]).

" Il est noir, avec l'abdomen rouge, ainsi que le dos du mésothorax et le milieu du métathorax. Le mésothorax n'a de rouges que ses trois lobes dorsaux, encore les deux latéraux sont ils couverts, dans leur dernière moitié, d'une large bande noire, plus étroite en avant. Ce qu'il y a de rouge au métathorax, c'est une carène plus large à la base qu'à l'extrémité. Les ailes sont entièrement brunes.

" La face est finement ponctuée et pourvue d'une fossette entre les antennes. Le lobe moyen du mésothorax est un peu saillant, large et marqué de deux légères sillons. Le métathorax est ponctué et velu ; sa carène seule est lissé. Le lobe médian du premier segment de l'abdomen est ponctué et séparé des bourrelets latéraux par un large sillon qui parait lissé en arrière et légèrement ponctué en avant, une fossette ou un gros point enfoncé se voit en avant de ce lobe. Le deuxième segment présente une carène saillante et étroit, dont la base est large et très courte ; une fossete arquée s'étend le long de la carène et passe contre les bourrelets latéraux, en contournant la base du segment. Les segments 3–5 offrent au milieu une petite saillie ou rudiment de carène ; les sillons de ces trois segments sont tout-à-fait lissés. L'abdomen est en ovale élargi."

Obs. The eyes reaching to the base of the clypeus and the white palpi (as in *Iphiaulax infirmus*) are probably sexual characters. I have not, however, both sexes of a species in which these two characters are found in the male ; they are certainly not always found in this sex.

Subfam. *SPATHIINÆ.*

SPATHIUS.

Spathius, Nees, Act. Acad. Leop.-Carol. Nat. Cur. 1818, p. 301.
Euspathius, Förster, Verh. Ver. Rheinl. xix. p. 236.

A genus of wide range. The comparatively few known species are parasites on wood-boring beetles.

i. *Transverse humeral nervure not received in the anterior humeral cellule.*

a. *Vertex shining, not striated transversely ; transverse humeral nervure not interstitial ; second cubital cellule on the lower side nearly as long as the third ; metathorax reticulated ; petiole constricted in the middle, about one third of the total length of the abdomen.*

1. **Spathius tinctipennis.** (Tab. XV. fig. 14, ♀ .)

Nigro-fuscus, scapo antennarum pedibusque testaceis, apice antennarum albo, femoribus coxisque posterioribus fuscis ; metathorace reticulato ; alis fere fuscis, nervis testaceis, stigmate fusco cum basi pallida. ♀.
Long. fere 5 millim. ; terebra 1·5 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Antennæ 26-jointed; the scape testaceous, the apical seven joints white, the rest blackish; covered with a close microscopic pile. Head shining; impunctate, except the face which is closely, but not coarsely or strongly, punctured; bearing some scattered hairs; the face testaceous, the rest black with a faint fuscous tint; mandibles testaceous; palpi long, white. Thorax black; the prothorax in front suffused with fuscous; mesonotum aciculated; prothorax closely punctured; mesopleuræ obliquely striated in front, the rest shining, impunctate; metathorax coarsely longitudinally punctured, and with six longitudinal keels down the metanotum, the outermost keel but one bearing, at the top and bottom of the apical slope, two teeth, of which the apical one is the longest and sharpest. Abdomen not much longer than the head and thorax together; petiole curved, a little more than half the length of the rest of the abdomen, closely punctured, and with two stout keels above and a keel also on either side, the side below the keel being hollowed; the other segments shining, impunctate; the ventral and apical segments suffused with testaceous. Ovipositor scarcely so long as the abdomen; the sheaths pilose, obscure testaceous, black at the apex; the terebra ferruginous, the extreme apex black. Wings not much longer than the head and thorax united; light fuscous, darker at the base, the nervures at the base and the stigma fuscous, the nervures beyond the stigma pallid; the transverse humeral nervure received distinctly in front of the transverse basal nervure; the second cubital cellule on the lower side nearly as long as the third. The four anterior legs testaceous; the middle femora suffused with fuscous; the hind coxæ, except at the apex, and the greater part of the hind femora, blackish; the hind tibiæ and tarsi testaceous; the hind coxæ finely punctured.

Differs from the other known Central-American species in the vertex not being striated; the antennæ shorter; the second cubital cellule longer; and the metathorax reticulated.

b. *Vertex striated; transverse humeral nervure interstitial; second cubital cellule much shorter than the third; metathorax aciculated.*

1 (2). Second segment and the base of the third not striolated, the metanotum with three areæ, the ovipositor shorter than the abdomen, the hind femora and tibiæ testaceous, the wings hyaline; petiole broad, shorter than the hind femora, dilated gradually towards the apex . . . . . *ornaticornis.*

2 (1). Second segment and the base of the third longitudinally striolated, the metanotum without areæ, the ovipositor longer than the body, the hind femora and tibiæ black, the wings fuscous; petiole longer than the hind femora, narrow . . . . . *fuscipes.*

2. **Spathius ornaticornis.** (Tab. XV. fig. 18, ♀.)

Niger, ore, scapo antennarum, striga mesonoti pedibusque testaceis, apice antennarum, palpis coxisque anterioribus albis; alis fere hyalinis, nervis stigmateque fuscis. ♀.
Long 5 millim.; terebra fere 2 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Antennæ longer than the body, filiform, microscopically pilose; a broad white band towards the apex, the apical two joints being themselves fuscous, the scape for the greater part testaceous. Head of the usual form, fuscous-black, the apex blacker, the orbits and mouth dark testaceous; palpi long, white; mandibles testaceous, darker at the apex. Pro- and mesonotum shining, impunctate; the middle lobe of the mesonotum broadly bordered with testaceous; the pronotum striated behind; mesopleuræ opaque, aciculate; metathorax opaque, strongly alutaceous, the apex of the metanotum scarcely so, and shining; metanotum with a central and two lateral keels, and three areæ (the central the longest and all rounded at the base) on the apical half. Abdomen a little longer than the head and thorax united; petiole finely longitudinally striated; the other segments shining, impunctate; the second segment more or less, and the apical segments entirely, dark testaceous; ventral surface brownish. Anterior legs white, except the tarsi; the middle coxæ, trochanters, and the base of the femora, and the hind trochanters also, white; the rest of the legs fulvo-testaceous, the femora and tarsi the darkest. Wings hyaline, the nervures testaceous; stigma fuscous.

3. **Spathius fuscipes.**

Niger, antennis, capite, geniculis, tibiis tarsisque anterioribus testaceis, palpis, apice antennarum coxisque anticis albis; alis fere fumatis, stigmate fusco cum basi alba. ♀.
Long. 4·5 millim.; terebra 5 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ much longer than the body, the basal half fuscous, the apical third white; microscopically pilose. Head as in *S. ornaticornis*, but the face more strongly shagreened and generally more suffused with testaceous. Prothorax shining, the pronotum striated behind; mesonotum aciculate, entirely black; mesopleuræ closely longitudinally aciculate; metathorax with two lateral keels (the central keel obsolete), finely rugose throughout, and without areæ. Petiole long, nearly as long as the thorax, narrow, closely longitudinally striolated, and with two keels running down on either side above; the second segment and the base of the third closely longitudinally striolated, opaque; the rest of the abdomen shining, the apex testaceous. The four anterior coxæ and trochanters white, the hind trochanters obscure white; the knees and the four anterior tibiæ and tarsi dull testaceous. Wings fuscous, much darker towards the apex.

A much more slender insect than *S. ornaticornis*, and easily known from it by the much longer and thinner petiole.

ii. *Transverse humeral nervure received before the transverse basal nervure in the anterior humeral cellule; head strongly transversely striolated.*

4. **Spathius striatifrons.**

Niger, palpis, apice antennarum pedibusque albidis, scapo antennarum, ore tarsisque posticis testaceis, coxis posticis (apice excepto) apiceque femorum posticorum nigris; alis fuscis, stigmate fusco cum basi et apice pallidis. ♀.

Long. 5·5 millim.; terebra 1·5 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ longer than the body, microscopically pilose, the scape on the underside and the apex broadly white. Head black, the orbits narrowly and the mouth testaceous; palpi white; face shining, transversely striated; vertex strongly transversely striated; front somewhat depressed in the middle, punctured. Mesonotum aciculate, opaque; scutellum shining, impunctate; pronotum strongly striolated; mesopleuræ shining, the fore part aciculate, the top longitudinally striolated; metathorax strongly longitudinally striolated throughout, without areæ, but with two lateral keels, the inner keel (where the slope begins and ends) bearing a tubercle. Petiole narrow, curved, finely longitudinally striated, and with a fine keel on either side; the rest of the abdomen shining, impunctate, the apex testaceous.

The position of the transverse humeral nervure forms a ready means of separating this from the preceding species. *S. striatifrons* also differs in the petiole being produced on either side not far from the base.

Subfam. *DORYCTINÆ.*

Doryctides, Förster, Verh. Ver. Rheinl. xix. p. 227.

DORYCTES.

Doryctes, Haliday, Ent. Mag. iv. p. 43 (1836).

The two species included here certainly belong to the "Doryctides" of Förster, but they do not quite agree with *Doryctes* as defined by him, inasmuch as the hind coxæ can scarcely be said to be "angularly produced in front;" while they differ from *Cœloides*, Wesm., in the suturiform articulation being obsolete, and in the transverse humeral nervure not being interstitial.

1. **Doryctes strongylogaster.** (Tab. XV. fig. 21, ♀.)

Nitidus, rufus; capite, antennis, prothorace, abdominis segmentis 4°–7ᵐ pedibusque, nigris; alis fuscis. ♀.

Long. 13 millim.; terebra 11 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ fully one half longer than the body, filiform, sparsely microscopically pilose;

the scape covered with a long pile, obscurely striated; third joint elongate, longer than the fourth; the other joints so closely amalgamated as to be indistinguishable. Head with the face below the antennæ coarsely rugose; vertex shining, impunctate, depressed behind; a broad furrow (narrowed at either end) above the antennæ, but not reaching to the top of the depression; face covered with long fuscous-black hair; eyes oval, margined, the head considerably developed behind them, but not projecting; ocelli surrounded by a furrow; mandibles piceous at the base; palpi black, long, pilose. Thorax shining; metathorax obscurely shagreened, showing a gradual slope to the apex; mesonotum with the middle lobe clearly separated from, and raised a little above and produced considerably in front of, the lateral lobe, and much broader in front than behind; the mosonotal sutures distinct, curved in front, and obscurely shagreened; the oblique furrow on the mesopleuræ wide and moderately deep; a much shorter, striated furrow on the mesosternum and a long and very narrow one on the metapleuræ, a wider furrow running down the metanotum. Abdomen scarcely one half longer and not much broader than the thorax; petiole flattish above, except at the apex, somewhat strongly longitudinally striated, with a narrow aciculated furrow along either side above, and a lateral (slightly wider) perpendicular furrow lower down, smooth at the apex, aciculate at the base; the second segment longitudinally striated on either side at the base, with a narrow transverse furrow, the centre aciculated. Terebra stout, the sheaths pilose. Tibiæ and tarsi densely pilose, the coxæ and trochanters sparsely clothed with long black hair. Wings long and narrow, the apical third paler; an oblique narrow hyaline cloud in the first cubital cellule; the recurrent nervure almost interstitial; the second cubital cellule short, scarcely twice the length of the third.

2. **Doryctes pertinax.**

Rufus, antennis, capite, prothorace, abdominis segmentis 7° et 8° pedibusque nigris. ♀.
Long. 11 millim.; terebra 9 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ thin, filiform, longer than the body, densely pilose; third joint a little longer than the fourth. Head rugose in front, opaque; vertex shining, impunctate; considerably depressed above the antennæ, the depression transversely striated; the ocelli surrounded by an oblong furrow, which is incomplete behind; the central furrow wide, shining, moderately deep. Thorax shining, impunctate; metanotum obscurely shagreened, especially at the sides, with a narrow keel running down the middle, the keel bifurcating at the centre and there forming an elongated area. Petiole shining, impunctate; the sides depressed at the base, the raised part having a keel along the sides; the furrow narrow and along the extreme edge. The other segments also smooth, shining, impunctate, without furrows or depressions.

Differs from *D. strongylogaster* in being smaller; the antennæ shorter, much more densely pilose; the frontal furrow longer, and reaching nearly to the ocelli; the

abdomen shorter and having only the apical two segments black; the petiole entirely smooth, not so flat on the top, and without any distinct furrow along the side; the second segment not striated, only obscurely transversely wrinkled; and the second cubital cellule longer, and considerably more than twice the length of the third.

ODONTOBRACON.

Head cubital, large, excavated above the antennæ; eyes oblong, not reaching nearly to the base of the clypeus. Antennæ filiform, multiarticulate; first joint of the flagellum a little longer than the second. Thorax elongate, stout, contracted in front, broad and transverse behind; mesonotal sutures deep, or moderately deep; the transverse depression at the base of the scutellum crenulated; metathorax large, of nearly equal width, usually coarsely rugose, ending laterally in a stout tubercle. Abdomen broadly sessile, broadest in the middle, usually a little longer than the thorax; stoutly longitudinally striolated at the base; suturiform articulation deep, and usually broad, nearly transverse or curved, generally joined to the deep furrow at the base of the second segment by an oblique or longitudinal furrow; apical ventral segment ploughshare-shaped. Ovipositor shorter or longer than the abdomen. Legs rather short, stout; femora short, thick; middle tarsi shorter than the tibiæ, and also shorter than the anterior or hind tarsi; basal joint of the tarsi not much longer than the second joint; hind coxæ thick, ending behind in a long, stout, curved tooth. Wings long, narrow, with three cubital cellules; the second cellule small, not more than one fourth of the length of the third cellule, variable in shape; the second humeral cellule shorter than the first discoidal cellule.

The toothed coxæ sufficiently distinguish *Odontobracon* from the other genera of "Doryctinæ." The occiput, moreover, is not very clearly margined.

1 (2). Prothorax only black; mesonotal sutures crenulate; metathorax reticulated throughout; second cubital cellule scarcely longer than broad . *nigriceps*.
2 (1). Mesothorax black; metanotal sutures and the base of the metanotum smooth; second cubital cellule longer than broad.
3 (4). Metanotum red; the recurrent nervure interstitial . . . . . *crassiventris*.
4 (3). Metanotum black; the recurrent nervure not interstitial . . . . . *montanus*.

1. **Odontobracon montanus.** (Tab. XV. fig. 17, ♀.)

Niger, abdomine rufo; alis fumatis. ♀.
Long. 13 millim.; terebra 6·5 millim.

Hab. Costa Rica, Irazu 6000 to 7000 feet (*Rogers*).

Antennæ longer than the body, tapering perceptibly towards the apex; closely covered with a depressed pile, which is somewhat long at the base of the flagellum. Face coarsely rugosely punctured; a small, shining, projecting part below the antennæ; the rest of the head shining, smooth; two rather long depressions above the antennæ, the depressions separated by a raised part which bears two keels; trophi black; the palpi pilose. Pro- and mesothorax shining, smooth, the sutures broadly crenulated; the oblique depression on the mesopleuræ broad. Metanotum, except at the base, covered with large, shallow, widely separated, roundish punctures; the apex semivertical, appearing excavated in the middle owing to the sides projecting in large tubercles; the inner side of the tubercles smooth and shining, the central apical portion coarsely punctured.

Petiole depressed behind, the depression margined round the apex; rather strongly longitudinally striated; an oblique, rather broad, but not deep, furrow on either side at the apex. The separation of the petiole from the second segment marked by a broad and deep furrow, from either side of which branches off a wider oblique furrow, the latter nearly uniting the deeper furrow with the large, broad, suturiform articulation; the central part of the second segment is thus surrounded by furrows, and is longitudinally striolated, except at the apex; the suturiform articulation is similarly striolated, and a little beyond it is a shallow, narrow, transverse furrow, the furrow being more finely striated. The apex of the abdomen is rather sharply pointed and bent downwards. Legs stout; the coxæ and femora sparsely clothed with hair; the tibiæ and tarsi much more densely covered with long, stiff hairs; the tooth on the hind coxæ long and curved. The recurrent nervure is scarcely interstitial; the first transverse cubital nervure is very oblique, the second straight; the second cubital cellule is, on the lower side, nearly twice the length of the second recurrent nervure.

2. **Odontobracon crassiventris.** (Tab. XV. fig. 15, ♀.)

Niger, metanoto abdomineque rufis; alis fumatis, basi fere hyalinis. ♀.
Long. 15 millim.; terebra 8 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ not much longer than the body, covered with a depressed pile. Face rugosely punctured, a shining, smooth, elongated, narrow space in the centre; front broadly depressed, a broad keel in the middle. Pro- and mesothorax smooth, shining, the sutures wide and deep; the pronotum deeply excavated, the excavation coarsely crenulated; middle lobe of the mesonotum largely developed, especially in front; scutellum with the depression at the base, and its sides, crenulated. Metanotum with the base shining, impunctate, the rest covered with large, widely separated punctures; at the centre of the base is a stout keel, which reaches to the middle; the apex has an oblique slope; the metapleuræ are not nearly so strongly punctured as the metanotum; the lateral tubercles are longer than broad. Petiole strongly longitudinally striolated; the base excavated, margined laterally. The second segment and suturiform articulation as in *O. montanus*; but the central part is more rounded at the apex (not being so transverse), and the striation is continued to the narrow, shallow furrow; a little beyond this latter is a similar curved, shallow, striated furrow, which at the sides bends backwards, so that the two furrows become nearly joined. There is an indistinct transverse narrow striated band on the fifth and sixth segments.

3. **Odontobracon nigriceps.** (Tab. XV. fig. 16, ♀.)

Rufus, antennis, capite pedibusque nigris; alis fumatis. ♀.
Long. 11 millim.; terebra 2 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ covered with rather long, depressed pile, the base with long hairs. Face rugosely reticulated; eyes distinctly margined, a depression over each. Pro- and mesothorax smooth, shining, the sutures crenulated, the pronotum depressed and bearing some stout keels; mesopleuræ below the fore wings coarsely irregularly striolated. Metathorax coarsely rugosely punctured, the centre reticulated; the lateral tubercles large, broad. Petiole and second segment strongly longitudinally striolated; the separation between them deep, but not very broad; the suturiform articulation comparatively narrow; the lateral furrow straight, not oblique as in *O. montanus*. The rest of the abdomen as in the preceding two species. The recurrent nervure is received a little in front of the first transverse cubital nervure; the second cubital cellule is very little longer than broad, the base slightly wider than the apex. Legs covered with long hair.

Subfam. *RHOGADINÆ*.

CLINOCENTRUS.

Clinocentrus, Haliday, Ent. Mag. i. p. 266 (1833).

I believe the insect described below may be regarded as a true *Clinocentrus*, the points wherein it differs from the typical species being, to my mind, specific rather than generic; it has the fifth abdominal segment longer than the fourth, the mesothorax in front raised nearly to the level of the head, the mesosternum acutely keeled at the sides, and the wings rather short.

1. **Clinocentrus rugulosus.**

Rufus, scapo antennarum, palpis pedibusque pallide testaceis, flagello antennarum fusco; alis hyalinis, stigmate nigro, nervis fuscis. ♀.

Long. 5 millim.; terebra 2 millim.

Hab. GUATEMALA, Cerro Zunil 4000 feet (*Champion*).

Antennæ 25-jointed, not much longer than the body, bare. Face coarsely punctured, the front and vertex more finely and closely so. Pro- and mesothorax shining, finely and aciculately punctured; a broad, crenulated furrow along the lower side of the prothorax, one along the mesosternum, an oblique one in front of the mesopleuræ, a broader one at the point of junction of the latter with the metathorax, and one along the sides of the mesonotum; parapsidal sutures wide, crenulated; scutellum finely punctured, keeled along the sides, and with four deep, oblong foveæ at the base; metathorax coarsely reticulated. Petiole coarsely striated, the striations wide apart and curved; second segment with the basal half less strongly and more closely, the intermediate part finely and closely, striated, the apex without striation.

YELICONES.

Head transverse, slightly tumid in front, excavated above the antennæ. Eyes large, oblong, reaching nearly to the base of the clypeus. Antennæ filiform, rather stout, the third joint longer than the fourth. Occiput scarcely margined. Metathorax with one or two central and two lateral keels on either side. Abdomen flat, sessile, the basal two segments keeled down the centre, striated; suturiform articulation distinct, striated; ovipositor scarcely projecting. Legs short, thick, the tarsi shorter than the tibiæ; fore tarsi with the basal joint scarcely twice the length of the second, the second, third, and fourth joints not broader than long, the apical joint much enlarged and as long as the other joints united; hind tarsi with the basal joint as long as the other four joints united, the apical joint as long as the preceding three united; claws pectinate. Wings with three cubital cellules; the second cubital cellule small, scarcely or not much more than twice the length of the first, narrowed at the top; second humeral cellule shorter than the first discoidal cellule; the recurrent nervure received considerably in front of the first transverse cubital nervure.

If the occiput be said to be not margined (and the margin is so indistinct that it might be thus described), this genus would fall into Förster's division "Exothecides;" if margined, it would fall into the "Rhogadides." I am inclined to regard it as allied to the latter. The peculiar structure of the tarsi separates it from any of the known genera of either group. The ovipositor is scarcely exserted.

1. **Yelicones violaceipennis.** (Tab. XV. fig. 19, ♀.)

Niger, ore, scutello, metanoto abdomineque luteis, palpis albis; alis fumatis. ♀.
Long. 8·5 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ stout, densely microscopically pilose; the third joint longer than the fourth. Head shining, the vertex sparsely covered with shallow, minute punctures, and the face with pale hair; a large shining depression over each antenna, marked with some oblique keels; from the ocelli a stout keel runs down the centre of the face to the clypeus; face strongly obliquely striolated; eyes margined; mandibles pale luteous, the tips piceous. Thorax, except the sides of the pronotum behind, densely covered with a grey pubescence. Pronotum in front and beneath and the mesothorax closely but not strongly punctured; at the apex of the mesonotum, in the centre, close to the scutellum, is a rather long and narrow space, this space bordered on either side and marked with stout transverse keels; the sides of the prothorax also bear keels, and the lateral sutures of the meso- and metathorax are crenulated. Metathorax coarsely reticulated; in its centre are two keels, which are near each other a little past the middle and separate again near the apex (thus forming an elongated keel at the base and another at the apex); on either side also there are keels. Abdomen a little longer than the thorax, flat, rounded at the apex; the basal segments closely longitudinally striated, the others longitudinally punctured; the first and second segments have a keel down the centre, the first also with a keel down the sides; densely covered with pale hair. Wings smoky, with a bluish tinge; the recurrent nervure received a little beyond the middle of the first cubital cellule; the second cubital cellule small, about half the length of the first, narrowed at the top,

where it is scarcely half the width of the lower part. Legs stout; the tibiæ and tarsi densely covered with stiff fulvous hair; the femora more sparsely clothed with longer and softer hair; the anterior coxæ, trochanters, and the base of the femora pale testaceous.

2. **Yelicones crassicornis.**

Ferrugineus, capite, antennis pedibusque nigris, ore, coxis trochanteribusque anterioribus testaceis, palpis albis; alis fumatis, nervis stigmateque fuscis. ♀.
Long. 8 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ stout, shorter than the body, curled at the apex, 34-jointed, closely pilose. Face punctured; front obliquely striated, a keel running down its centre from the ocelli; vertex shining, scarcely punctured. Pro- and mesothorax impunctate; scutellum sharply narrowed towards the apex, small, two large foveæ at its base; metathorax obscurely reticulated, with a central keel and two keels on either side. Abdomen not much longer than the thorax, the basal segments punctured; a keel down the centre of the first and second segments, the keels bifurcated at the base. The body is covered with short pale pile, which is longest on the apex of the abdomen. Legs stout, pilose; the anterior femora testaceous on the lower side; the anterior tibiæ and tarsi fuscous beneath, as are also the middle femora; the tarsi incline to fuscous. The pronotum in front and the prosternum are blackish.

3. **Yelicones melanocephalus.** (Tab. XV. fig. 20, ♀.)

Fulvo-testaceus, antennis, capite, pedibus prosterneque nigris; alis fuscis, nervis nigris. ♀.
Long. 5·5 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ stout, the apex curled; covered with a short fuscous pile. Head very sparsely pilose; the face rather coarsely punctured; the front a little depressed over the antennæ, a stout keel in the centre with some oblique keels running into it; the vertex aciculated; the oral region, mandibles (except at the apex), and palpi pale fulvous. Thorax shining, sparsely pilose, finely (but not closely) punctured; metanotum more strongly punctured, furrowed down the centre, and sparsely covered with long pale hair. Petiole longitudinally striated and punctured, an obscure keel down the side; the sides distinctly margined. Second segment finely longitudinally striated, punctured at the apex and keeled down the centre; the other segments obscurely punctured. Legs densely pilose; the four anterior coxæ and trochanters fulvous; the fore tarsi and the hind tibiæ incline to piceous. The neuration is much as in *Y. violaceipennis*, except that the second cubital cellule is broader at the top.

RHOGAS.

Rogas, Nees, Act. Acad. Leop.-Carol. Nat. Cur. 1818, p. 306.
Rhogas, Marshall, Cat. Brit. Hymen. p. 100 (1872).

This genus has a wide geographical range in both hemispheres, and contains numerous species.

A. *Middle joints of the palpi not enlarged.*

a. *Eyes deeply incised, reaching to the base of the clypeus.*

1 (2). Legs black; wings smoky . . . . . *fumipennis.*
2 (1). Legs pale testaceous; wings hyaline . . . . . *mexicanus.*

1. **Rhogas fumipennis.**

Thorace rufo, abdomine flavo-testaceo, capite, antennis, prothorace pedibusque nigris; alis fumatis.
Long. 10–11 millim.

Hab. Mexico.

Antennæ moderately stout, densely microscopically pilose, the joints scarcely separable; the scape covered with long hair. Face covered with long fuscous hair, projecting in the middle, punctured; front and vertex shining, impunctate, the former a little depressed in the middle and also close to the eyes, and with a furrow in the centre; eyes margined, rather long, incised on the inner side above the antennæ, reaching below the middle of the base of the clypeus; the head narrowed and not much developed behind the eyes. Pro- and mesothorax shining, impunctate; parapsidal sutures deep, not very wide; metanotum sparsely covered with long fuscous hair, finely rugose, the central keel distinct, stout, bifurcating towards the apex; the oblique furrow on the mesopleuræ rather long, narrow, and situated below the middle; the furrow on the mesosternum obsolete. Abdomen a little longer than the head and thorax united; the first and second segments, and the basal half of the third, closely and finely rugose, a keel down the centre of the first and second. Petiole with the extreme base depressed, and smooth and shining in the centre; without furrow along the sides above. Tibiæ and tarsi closely and stiffly pilose; the rest of the legs sparsely covered with hair. Wings shorter than the body, of nearly uniform colour; stigma fuscous on the lower side; the recurrent nervure received before the first transverse cubital nervure and in the first cubital cellule; the second cubital cellule not half the length of the third, and shorter than the first on the lower side.

2. **Rhogas mexicanus.** (Tab. XV. fig. 22, ♂.)

Flavo-luteus, antennis nigris, abdomine flavo; alis hyalinis, nervis fuscis, stigmate flavo. ♂ ♀.
Long. 9 millim.

Hab. Mexico, Presidio (*Forrer*).

Antennæ 47-jointed, densely microscopically pilose, distinctly tapering towards the apex. Head finely punctured, sparsely covered with glistening white hair; palpi long, pilose. Thorax above closely and finely punctured, covered with scattered pale hair; metanotum somewhat rugose. Abdomen not much longer than the head and thorax united; closely longitudinally punctured, the apical segment not nearly so strongly punctured as the basal one; the basal three segments becoming gradually, but only moderately, dilated; a depression on the centre of segments 4–6 in the middle, that on the fourth being the smallest and deepest; a narrow keel in the centre of the first and second segments, that on the first cleft at the extreme base, that on the second originating from a small, shining, triangular field; an indistinct keel at the base of the third segment. Legs pilose; coxæ punctured; hind tarsi inclining to fuscous. The recurrent nervure is scarcely interstitial; the transverse humeral nervure received not very far from the transverse basal nervure; the second cubital cellule a little shorter than the first; the second transverse cubital nervure straight and largely bullated.

b. *Eyes very slightly incised, not reaching to the base of the mandibles.*

3. **Rhogas sonorensis.** (Tab. XVI. fig. 1, ♀.)

Luteus, punctulatus, pedibus pallide testaceis; alis hyalinis, stigmate fusco cum basi et apice albis. ♀.
Long. 5 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ a little longer than the body, 32-jointed, scarcely pilose, fuscous towards the apex, striated. Thorax (especially laterally) clothed with whitish hair; metanotum with a transverse keel at the base, a keel down the centre, and also one down either side. Abdomen not much longer than the head and thorax united, closely longitudinally striated; the first and second segments keeled down the centre. The transverse humeral nervure is received in the basal third of the first discoidal cellule; the recurrent nervure is nearly interstitial; the second cubital cellule shorter than the first; the second transverse cubital nervure nearly obliterated.

B. *Middle joints of the palpi dilated.*

The following two species probably do not belong to *Rhogas*, from the typical species of which they differ in having the joints of the palpi considerably enlarged and dilated. *Pelecystoma*, Wesm. (a genus nearly allied to *Rhogas*), has the third joint of the maxillary palpus dilated on the inner side and securiform; but in the species here described the three middle joints of the maxillary and the third joint of the labial palpi are enlarged, but scarcely so much as in *Pelecystoma*. The eyes are incised on the inner side, are large, and reach a little below the base of the clypeus. The antennæ are longer than the body, especially in the male, and are about 50-jointed. The lobes of the meso-

notum are distinct; only the lateral keels are present on the metathorax. The basal segments of the abdomen are longitudinally striated, and keeled in the centre. In the male (*R. bugabensis*) the petiole is very narrow, petiolated in fact, and thus differs still further from the typical *Rhogas*. As will be seen, the two species differ in neuration.

a. *Transverse humeral nervure received in the middle of the first discoidal cellule; the recurrent nervure at a little distance in front of the first transverse cubital nervure; the second cubital cellule of equal width throughout, a little shorter than the first. Ovipositor short, scarcely projecting.*

4. **Rhogas melanocephalus.**

Luteus, capite nigro, antennis fuscis; alis fere fumatis, stigmate fusco. ♀.
Long. 7 millim.

Hab. Mexico, Cordova (*Sallé*).

Antennæ longer than the body, shortly and densely pilose, 43-jointed. Face finely transversely striated. Thorax scarcely, if at all, punctured above, obsoletely longitudinally striated; pleuræ shining and impunctate in the centre; a stout transverse keel at the base of the metanotum, a narrower keel down the centre and at either side. Abdomen a little shorter than the head and thorax united; the basal segments rather strongly longitudinally striated, keeled down the centre, and margined laterally; the apical segments impunctate, shining; the ovipositor short, black. The transverse humeral nervure is received in the middle of the first discoidal cellule; the recurrent nervure a little distance in front of the first transverse cubital nervure.

b. *Recurrent and transverse humeral nervures almost, if not quite, interstitial; the second cubital cellule much longer than the first, and not much shorter than the third; the cubital nervure obliterated a little beyond the third cellule. Abdomen subpetiolate, clavate at the apex.*

5. **Rhogas bugabensis.** (Tab. XV. fig. 23, ♂.)

Pallide flavus, abdomine antennisque luteis, mesonoto nigro; alis fere hyalinis, stigmate testaceo. ♂.
Long. 12 millim.

Hab. Panama, Bugaba (*Champion*).

Antennæ 73-jointed, longer than the body; densely pilose, the pile much longer towards the apex. Head and thorax shining, impunctate. Abdomen rather strongly longitudinally striolated (except at the apex), the two basal segments margined, more than twice the length of the head and thorax united; petiole long and narrow, margined laterally. Body and legs covered with pale hair. The transverse humeral nervure is received not far from the transverse basal nervure; the recurrent nervure

is scarcely interstitial; the second cellule much longer than the first; beyond the second cellule the cubital nervure is obliterated. Legs rather long, the tarsi longer than the tibiæ.

LELUTHIA.

Head large, scarcely transverse in front, narrowed behind the eyes, the latter oval; occiput margined. Antennæ filiform. Thorax elongated, especially the metathorax, the latter about three fourths the length of the mesothorax. Abdomen sessile, longer than the head and thorax united; the basal three segments large, longitudinally striolated; suturiform articulation present, straight or curved; the other segments all distinct, not retracted. Wings: three cubital areolets; first abscissa of the radius longer than the second; the recurrent nervure recurved before the first transverse cubital nervure; second humeral cellule shorter than the first discoidal cellule; anal nervure not interstitial.

I am not quite satisfied that this genus belongs to the "Cyclostomi;" there is an incision over the mouth, but the incision can scarcely be said to be semicircular, nor is it so large as in the normal forms of that division. If it belongs to the latter it would come nearest to *Rhogas*.

The very obscure incision in the anal region, however, makes me doubt the relationship of *Leluthia* to that genus.

1. **Leluthia mexicana.** (Tab. XVI. fig. 2, ♀.)

Nigra, basi flagello antennarum, ore, trochanteribus geniculisque, sordide testaceis; alis hyalinis, nervis fuscis, stigmate nigro. ♀.

Long. 6 millim.; terebra 4 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ 28-jointed, as long as the abdomen, almost bare; second joint about one fourth longer than the third, the latter a little shorter than the fourth. Head closely punctured, bearing some long white hairs. Thorax closely punctured (more strongly so than the head); the pro- and mesopleuræ strongly longitudinally striolated, except the latter posteriorly, this part being strongly aciculated; scutellum much wider than long, narrowed obliquely towards the apex, aciculated, the transverse furrow at the base stoutly keeled. Metathorax stoutly longitudinally punctured; the pleuræ more or less reticulated. Sternum aciculated. Abdomen longer than the head and thorax united; the petiole and second segment behind the suturiform articulation strongly longitudinally striolated. Suturiform articulation thin, considerably bent backwards; the abdomen behind it finely and closely punctured, except at the apices of the segments. Wings comparatively short and narrow.

2. **Leluthia fuscinervis.** (Tab. XVI. fig. 3, ♀.)

Nigra, basi antennarum pedibusque testaceis, coxis femoribusque ex parte nigris; alis hyalinis, nervis fuscis, stigmate nigro. ♀.

Long. 4 millim.; terebra fere 2·5 millim.

Hab. Guatemala, Pantaleon 1700 feet (*Champion*).

Antennæ 25-jointed, covered with a dense microscopic pile, longer than the body, the second joint a little longer than the third. Head closely and somewhat strongly punctured, sparsely covered with white hair; eyes margined; mandibles dark testaceous; palpi long, white. Thorax covered with rather long whitish hair; closely punctured, except the centre of the mesopleuræ, which is shining and smooth; metathorax irregularly reticulated, the sides rather more punctured than reticulated; an aciculated space on either side at the base of the metanotum. Abdomen with the basal two segments, and also the base of the third segment, longitudinally striolated; the petiole much more strongly longitudinally striolated, and the third segment also, but less distinctly so than the second; the other segments shining, smooth, testaceous at the apices. The aculeus is pilose, dull testaceous, the apex black. The legs are covered with white hair, the tibiæ and tarsi much more densely than the femora; coxæ strongly punctured; the femora are black, except at the base and apex and the front pair beneath. Wings: the transverse basal nervure received not far behind the transverse humeral nervure; the recurrent nervure not interstitial; the first transverse cubital cellule almost, if not quite, obliterated; the second cubital cellule wider at the base than at the apex, through the cubital nervure bending downwards at the base, and on the lower side a little longer than the first.

Division CRYPTOGASTRI.

Subfam. *CHELONINÆ*.

CHELONUS.

Chelonus, Jurine, Nouv. Méthode de Class. les Hymén. p. 289 (1807).

A genus of very wide distribution, and numerous in species.

1 (2). Base and apex of the abdomen with two round reddish spots . . . *quadrimaculatus*.
2 (1). Base of the abdomen marked with white.
3 (6). Scutellum shining, only finely punctured.
4 (5). Wings hyaline throughout, the base of the abdomen entirely white . *basimacula*.
5 (4). Wings smoky in front of the stigma, the base of the abdomen with two white marks . . . . . *sonorensis*.
6 (3). Scutellum and thorax rugose . . . . . *annulipes*.

1. **Chelonus quadrimaculatus.** (Tab. XVI. fig. 5, ♀.)

Niger, geniculis, tibiis tarsisque pro parte albis; thorace punctulato; abdominis maculis 4 rufis; alis hyalinis. ♀.

Long. 4·5 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ a little longer than the body, faintly microscopically pilose, the scape bearing white hairs. Head closely punctured, more strongly so at the top and behind; clypeus shining, finely punctured round the edges, more faintly punctured in the centre; mandibles red; palpi black. Thorax covered with a short silky white pile; the top closely, the sides and metathorax more strongly, punctured; scutellum shining, bearing some widely separated punctures; apex of the metathorax semioblique, margined at the top, and toothed laterally. Abdomen scarcely so long as the head and thorax united, and bearing on the apical three fourths a close, short, sericeous pile; closely and uniformly punctured, the base without any carinæ; a roundish red mark on either side at the base and apex. Legs obscure yellowish-white; the coxæ, the trochanters, the basal three fourths of the four anterior femora, the posterior femora (except the apex), the apices of the hind tibiæ and tarsi, broadly black. Wings hyaline, faintly smoky in the middle; the costa and nervures in front of the stigma fuscous, behind it yellowish-white; first transverse cubital nervure curved; cubital nervure but slightly bent at the second cubital cellule.

2. **Chelonus basimacula.** (Tab. XVI. fig. 6, ♀.)

Niger, scapo antennarum pedibusque anterioribus rufis, abdominis basi late, tibiis tarsisque posticis albis; coxis, femoribus posticis pro parte tibiarumque posticarum apice late nigris; alis hyalinis. ♀.

Long. 4·5 millim.

Hab. Panama, Bugaba (*Champion*).

Antennæ nearly as long as the thorax and abdomen united; 16-jointed, the flagellum covered with a silvery silky pile. Face transversely striated, the centre indistinctly keeled; vertex obliquely striated; front depressed and keeled in the centre; palpi fuscous; mandibles piceous. Thorax opaque, covered with silky white hair; pleuræ rugose; mesonotum coarsely aciculated, a stout keel running down its entire length, and two short keels on either side of this at the base; scutellum shining in the centre, stoutly keeled at the base and at the sides; metanotum coarsely longitudinally reticulated, its apex nearly perpendicular. Abdomen about as long as the head and thorax united; the base deeply excavated and keeled, the keels being continued on to the top and converging towards the apex of the first segment; the basal part closely irregularly striated (this striation is continued to the apex, but becomes much finer there), the extreme apex being rather punctured than striated, and also densely covered with a grey pile; the ventral surface shining, and bearing a keel on either side at the apex. Legs stout, covered with a white pile; the tips of the coxæ, the base and apex of the hind femora, and the base of the hind tibiæ, reddish; the apices of the tarsi blackish, the middle tibiæ and tarsi much paler in tint than the anterior tarsi. Wings: the median nervure at the base, the transverse basal nervure, and the basal part of the cubital nervure, curved; the cubital nervure beyond the second cubital cellule, and the transverse cubital nervure, faint; the

second cubital cellule contracted at the apex; at the base the nervures are white, at the apex fuscous, the stigma being also fuscous.

3. **Chelonus sonorensis.** (Tab. XVI. fig. 4, ♀.)

Niger, geniculis, tibiis tarsisque albidis, apice tibiarum posticarum nigro; thorace punctulato; alis fumatis, basi hyalinis. ♀.

Long. 5 millim.

Hab. MEXICO, Northern Sonora (*Morrison*).

Antennæ a little longer than the body; the flagellum almost bare, the scape covered with rather long pale hair. Head covered with a sericeous pile, in front strongly transversely, at the sides behind the eyes longitudinally, striated; clypeus shining, obscurely punctured; tips of the mandibles piceous. Thorax covered with a close sericeous pile, especially on the sides; coarsely rugose, with some short stout longitudinal keels in front of the scutellum, the latter shining, impunctate; metanotum coarsely reticulated, with two stout keels in the centre, its apex semiperpendicular, bordered above by a stout keel, and ending in a blunt tooth at the sides. Abdomen somewhat pyriform, a little longer than the head and thorax united, becoming gradually and slightly broader to the apical fourth; covered with a short dense sericeous pile, which is still denser towards the apex; longitudinally rugosely reticulated, more strongly so at the base; with two stout curved keels and two elongated yellowish-white marks at the base; the ventral surface at the base also yellowish-white. Legs testaceous-white; the coxæ, trochanters, basal three fourths of the four anterior femora, the posterior femora entirely, the tips of all the tarsi, and the apices of the hind tibiæ, black; the tips of the joints of the hind tarsi fuscous. Wings hyaline, darker in front of and (especially) below the stigma; the costa and nervures behind the stigma yellowish-white, the nervures in front of it fuscous, the stigma itself black; a curved thin white cloud in the first cubital cellule; the basal nervure dilated at the apex, curved near the costa; the radial nervure curved at the base and forming a rounded angle where the second transverse cubital nervure is received; the cubital nervure curved downwards to the end of the second cubital cellule, and then running obliquely and straight to the apex, the apical part being much fainter than the basal; the first cubital nervure oblique, straight.

4. **Chelonus annulipes.**

Niger, pedibus anterioribus pro parte annuloque tibiarum posticarum albis; thorace rugoso; alis fumatis, basi fere hyalinis.

Long. fere 5 millim.

Hab. GUATEMALA, Volcan de Atitlan 3500 feet (*Champion*); PANAMA, Bugaba (*Champion*).

Antennæ 24-jointed, microscopically pilose, the scape reddish. Head covered with glistening white hair; rugose, but not so strongly so on the top; front depressed.

Thorax rugose throughout, the metathorax much more strongly so; the latter gradually sloping to the apex, and without tubercles. Abdomen opaque, finely and closely rugose; the base with some stout striations; with two white spots placed laterally and at a little distance from the base. Legs stout, sparsely whitish-pilose; the trochanters, the fore coxæ, the apices of the middle coxæ, and a ring near the base of the hind tibiæ, white; the front femora, tibiæ, and tarsi, and the middle knees, whitish-testaceous, this colour running into red on the femora and tibiæ. The fore wings are hyaline behind the stigma, smoky in front of it.

In some specimens the white marks on the abdomen extend nearly to the middle of the segment, and the metanotum runs into reticulations; in others the punctuation is stronger. A specimen from Bugaba has the hinder tibiæ entirely black.

Easily known from the other Central-American species by the strongly rugose thorax.

ASCOGASTER.

Ascogaster, Wesmael, Nouv. Mém. Acad. Brux. 1835, p. 226.

This genus (or section) differs from *Chelonus* in having the eyes bare, and in the first discoidal cellule being separated from the first cubital cellule.

1. **Ascogaster bugabensis.**

Niger, scapo antennarum fusco, pedibus rufo-testaceis, dimidio apicali tibiarum posticarum tarsisque posticis nigris; alis hyalinis, basi fere fumatis. ♀.
Long. fere 4 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ a little shorter than the body, 16-jointed, microscopically pilose; the third and fourth joints subequal, the fourth longer than the preceding two united, conical; the scape reddish-testaceous beneath. Face shining in the centre, the sides more opaque, minutely punctured; vertex shining, minutely punctured; mandibles obscure testaceous. Thorax shining, the sides bearing rather long white hair; the mesopleuræ minutely punctured along the edges; scutellum rugose; metathorax semiopaque, punctured, strongly so at the apex, the apex with an oblique slope, margined above, and without distinct tubercles. Abdomen strongly longitudinally striolated, and with three stout keels at the base; the apex shining, smooth. Wings hyaline, scarcely infuscated towards the apex, the nervures dark fuscous, pale at the base; the transverse basal nervure curved; the radial nervure angled where it receives the transverse cubital nervure, these nervures being perfectly straight. Legs stout; red, except the apical three fourths of the hind tibiæ and the hind tarsi.

Division **AREOLARII.**

Subfam. *MICROGASTERINÆ.*

MICROGASTER.

Microgaster (Latreille), Förster, Verh. Ver. pr. Rheinl. 1862, p. 245.

A well-known genus, found in most parts of the temperate regions of the world.

1. **Microgaster mexicanus.** (Tab. XV. fig. 24, ♀.)

Niger, pedibus anterioribus tibiisque posticis late rufis; alis fumatis, basi fere hyalinis. ♂ ♀.
Long. 4 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ 18-jointed, microscopically pilose. Head and thorax opaque, finely rugosely punctured, covered above with a sparse pubescence; the pleuræ with a longer grey pubescence. Metanotum rugosely reticulated, more shining than the mesonotum; a stout keel down the centre; the apex rather abrupt. Abdomen shining, the petiole finely aciculated, raised in the centre, the raised part distinctly margined; a broad and deep transverse furrow on the second and third segments at the apex, and an indistinct furrow on either side of the second segment before the middle; the petiole a little longer than broad, and also rather longer than the second segment; the second segment about one fourth longer than the third, the latter nearly as long as the fourth. Legs stout, shortly pilose; the first pair reddish, except the bases of the coxæ and the tips of the tarsi; the middle femora broadly black; the hind femora quite black; the hind tibiæ broadly black at the apex; the hind tarsi for the greater part fuscous. Wings obscurely smoky, except the lower part behind the recurrent nervure, where they are of a deeper smoky tint; the cubital nervure almost obsolete beyond the areolet, the latter almost open at the apex; the recurrent nervure received about the length of the areolet on the lower side in front of the first transverse cubital nervure; the transverse nervures straight, not curved.

Subfam. *AGATHINÆ.*

This subfamily is very numerously represented in tropical regions, and contains some large and striking forms.

AGATHIS.

Agathis (Latreille), Wesmael, Nouv. Mém. Acad. Brux. 1837, p. 23.

The elongated, snout-like face makes this genus easily recognizable. Comparatively few species have been described.

1 (6). Abdomen black.
2 (3). Tarsi white . . . . . *cressoni.*
3 (2). Tarsi black.
4 (5). Mesopleuræ red . . . . . *chiriquensis.*
5 (4). Mesopleuræ black . . . . . *violaceipennis.*
6 (1). Abdomen reddish.
7 (8). Thorax more or less black . . . . . *albispina.*
8 (7). Thorax entirely reddish.
9 (10). Head and hind tibiæ black . . . . . *tibialis.*
10 (9). Head and hind tibiæ red . . . . . *ferrugineus.*

1. **Agathis cressoni.** (Tab. XVI. fig. 9, ♀.)

Agathis albitarsis, Cresson, Proc. Acad. Phil. iv. p. 63 (1865)[1] (nec Brullé, 1840).

Hab. Mexico, Valladolid in Yucatan (*Gaumer*); Nicaragua, Chontales (*Janson*); Panama (*Boucard*).—Antilles, Cuba [1].

A specimen from Chontales has the anterior femora red.

2. **Agathis violaceipennis.** (Tab. XVI. fig. 8, ♀.)

Niger, nitidus, metathorace rufo; alis violaceis. ♀.
Long. 12 millim.; terebra 4 millim.

Hab. Panama, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ stout, tapering towards the apex, shorter than the thorax and abdomen united; covered with a close microscopic pile, the basal joints of the scape with long hair. Head not very shining, densely covered with fuscous hair; front deeply excavated, the excavation with a stout margin; two keels running down from the ocelli, uniting at the apex. Thorax with the middle lobe raised, a shallow, not very distinct, depression, bordered by an obscure keel, in the centre of the lobe; a row of short, stout keels running down the hinder edge of the pronotum; a stronger and broader keel on the mesopleuræ near the metapleuræ; some indistinct keels in the front of the mesopleuræ, this part having a longish fringe of white hair; the sternum covered with pale hair; a deep and wide depression, divided in two by a stout keel, in front of the scutellum. Metathorax long, its apex abrupt; stoutly transversely keeled. Metanotum with two keels in the centre, the keels uniting at the base but diverging towards the apex; a waved keel running from each side of the base and uniting with the central keels at the apex; a keel immediately external to these, and, much nearer the edge, yet another keel, the latter ending in a stout, leaf-like projection; the lower part of the metapleuræ coarsely reticulated. Abdomen shorter than the thorax, shining; the base of the petiole depressed, the sides channelled; sheaths of the ovipositor black, hairy. Legs pilose, the femora, coxæ, and trochanters bearing long white hair; strongly punctured. Wings deeply violaceous; an irregular hyaline spot in the first cubital cellule.

3. **Agathis chiriquensis.** (Tab. XVI. fig. 7, ♂.)

Niger, nitidus, mesopleuris, mesosterno metathoraceque rufis; alis violaceis. ♂.
Long. 11 millim.

Hab. Panama, David (*Champion*).

Antennæ a little longer than the body, densely pilose, involute; the scape shining, sparsely covered with long hair. Head densely covered with fuscous hair; the front not much depressed in the centre, the depression indistinctly margined; ocelli raised. Pronotum with a row of stout keels on its hinder edge; mesonotum with a shallow channel down the centre of the middle lobe; an oblique line of large keels on the mesopleuræ, and a row of similar keels down their hinder edge near the metathorax; metathorax coarsely reticulated; metanotum with four longitudinal keels (the central two placed near together, the others nearer the edge), and a stout keel outside the spiracles. Abdomen longer than the head and thorax united, narrower than the thorax, shining; the petiole long, narrow. Legs densely covered with stiff black hair; punctured. Wings deeply violaceous, with a narrow, irregular, oblique, hyaline cloud going down from the base of the stigma through the first cubital cellule. Palpi testaceous.

This insect differs from *A. violaceipennis* in having the mesopleuræ marked with a broad oblique line of carinæ; the metapleuræ reticulated throughout; the central two keels on the metanotum much nearer each other and not forming a triangle, there being, moreover, only four keels in all; and the mesothorax red laterally and beneath.

4. **Agathis albispina.** (Tab. XVI. fig. 10, ♂.)

Niger, metathorace, coxis posticis supra, femoribus posticis abdomineque rufis; tegulis, palpis tarsisque anterioribus albis; alis fuscis, basi subhyalinis. ♂.
Long. 8·5 millim.

Hab. Mexico, Valladolid in Yucatan (*Gaumer*).

Antennæ longer than the body, stout, densely and shortly pilose; the flagellum fuscous. Head shining, the face densely covered with fuscous pubescence, indistinctly punctured; labrum obscure testaceous; front deeply excavated; two furrows, converging at the apex, running down from the ocelli. Thorax covered with a rather long grey pile, impunctate (the metapleuræ excepted), and almost shining; middle lobe of the mesonotum distinct, the sutures reddish; scutellum keeled, the apex and the sides reddish; metanotum with two central and two large lateral areæ on the upper part, and three areæ on the semivertical apical part. Petiole deeply excavated at the base; the basal half depressed, keeled along the sides, narrower than the apical part, and raised in the centre. Second segment depressed at the base, and with a much wider depression in the middle. Legs (especially the coxæ) densely covered with pale hair.

5. **Agathis tibialis.** (Tab. XVI. fig. 13, ♀.)

Ferrugineus, capite, antennis, palpis, mesosterno, trochanteribus, tibiis tarsisque posterioribus nigris, facie orbitisque late rufis; alis fuliginosis. ♀.
Long. 8·5 millim.; terebra 4·5 millim.

Hab. Mexico, Presidio (*Forrer*).

Antennæ nearly as long as the body, microscopically pilose, tapering distinctly towards the apex. Head and thorax shining, impunctate; metanotum rugose, 6-keeled. Abdomen not much longer than the head and thorax united, much narrower than the thorax, smooth, impunctate. Legs stout; femora shining, sparsely covered with rather long white hairs; the apices of the four anterior coxæ, and the whole of the hind coxæ and trochanters, black; the hind tibiæ obscure reddish on the inner side towards the middle; the anterior tibiæ darker than the others; the spurs reddish. Wings: areolet oblique, of equal width throughout, a little longer than broad; an interrupted white cloud below the base of the stigma.

6. **Agathis ferrugineus.** (Tab. XVI. fig. 11, ♀.)

Ferrugineus, nitidus, antennis tarsisque posticis nigris; alis fuliginosis. ♀.
Long. 9 millim.; terebra fere 4 millim.

Hab. Mexico, Presidio (*Forrer*).

Antennæ nearly as long as the body, microscopically pilose. Mesothoracic lobes well-developed, the middle lobe longitudinally furrowed. Metanotum transversely striolated, longitudinally keeled. Abdomen about the length of the head and thorax united. Wings as in *A. tibialis*.

EARINUS.

Earinus, Wesmael, Nouv. Mém. Acad. Brux. 1837, p. 8.

This genus only differs from *Microdus* in the first discoidal cellule being separated from the first cubital cellule. This is quite an artificial character, and *Earinus* would be better united with *Microdus*. The three divisions into which I have divided the latter genus might as well be raised to generic rank if we retain it as distinct from *Earinus*, for the presence or absence of the suturiform articulation is of more importance than the partial obliteration of a nervure. In the only species of *Earinus* known from our region the mesonotum is trilobate.

1. **Earinus erythropoda.** (Tab. XVI. fig. 20, ♀.)

Niger, nitidus, pedibus rufis, tibiis posticis pallidis, apice late tarsisque posticis nigris; alis fumatis. ♀.
Long. 9 millim.; terebra 5 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ a little shorter than the body, almost bare. Face densely, the top more

sparingly, covered with rather long silvery-white hair; shining, impunctate. Thorax (except the centre of the mesopleuræ) covered with silvery-white hair, shining, impunctate; scutellum bordered along the side, a deep curved depression at its base; metanotum with two closely placed keels down the centre and another keel near the spiracles. Abdomen as long as the head and thorax united, the underside covered with rather long white hair; second segment raised at the base, the raised part broader than long and narrowed towards the apex. Wings: areolet straight, of equal width, a little longer than broad, a short nervure issuing from the middle of the outer nervure.

MICRODUS.

Microdus, Nees, Act. Acad. Leop.-Carol. Nat. Cur. 1818, p. 304.
Eumicrodus, Förster, Verh. Ver. pr. Rheinl. xix. p. 247 (1862).

A genus of world-wide distribution.

1. *Suturiform articulation obsolete* (*unless the broad, smooth, transverse furrow on the second segment in* M. basimacula *and its allies represents it*).

A. *Abdomen without transverse furrows on the second and following segments; petiole not distinctly raised in the centre; ovipositor shorter than the petiole.*

a. *Body more or less yellow; wings yellowish, banded with violaceous or black.*

1 (6). Mesonotum more or less black.
2 (3). Mesopleuræ and face black; hind coxæ yellow . . . . . *melanostoma.*
3 (2). Mesopleuræ and face yellow; hind coxæ black.
4 (5). Hind femora yellow . . . . . *pulchripennis.*
5 (4). Hind femora black . . . . . *championi.*
6 (1). Thorax without black.
7 (8). Hind femora black . . . . . *peronatus.*
8 (7). Hind femora yellow . . . . . *coxalis.*

1. **Microdus melanostoma.** (Tab. XVI. fig. 15, ♂.)

Luteus, antennis, capite, pro- et mesothorace, tibiis tarsisque posticis abdominisque apice late nigris; alis flavo-hyalinis, fusco bifasciatis, stigmate flavo. ♂.
Long. 10–11 millim.

Hab. Panama, Bugaba (*Champion*).

Antennæ considerably longer than the body; densely pilose, except the scape. Face bearing shallow punctures; the foveæ over the clypeus large, wide, deep; the frontal depression continuous, deep; a rather long furrow behind the eyes at the top. Middle lobe of the mesonotum raised, but without a bordering furrow, its top shagreened; metanotal areæ obsolete, or nearly so. Abdomen about the length of the head and

thorax united. Legs rather long, the hind tibiæ more or less brown in front; covered with scattered whitish hair. Wings rather long; the middle fascia on the fore pair extending from the commencement of the transverse basal nervure to the base of the stigma and of nearly equal width; the apical cloud commencing at the end of the stigma; the areolet on the lower side as long as wide, the nervures not meeting at the top; the hind wings faintly clouded towards the apex.

2. **Microdus pulchripennis.**

Luteus, antennis, capite, mesonoto, abdominis segmentis 4°–8ᵐ, coxis, basi femorum, apice tibiarum late tarsisque posticis nigris; alis flavo-hyalinis, fusco-violaceo bifasciatis, stigmate nigro cum apice flavo.
Long. 11 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ densely pilose, a little longer than the body, the tips involute; the underside of the flagellum inclining to fuscous, the apex of the scape testaceous. Face rather strongly punctured, black only at the top; the foveæ above the clypeus rather long, deep; frontal depressions deep, triangular above; the bordering keel acute, projecting. Thorax shining; the mesonotum with a few scattered punctures, the middle lobe depressed in the centre, the sides of the depression forming a keel. Metanotum with two broad, deep, basal and five central areæ (the outermost of these the largest, the central areæ of equal width, acutely pointed at the base, and transverse at the apex), and five apical areæ (the central of these small, Λ-shaped, the lateral ones longer than broad, the innermost being the larger); the areæ all very smooth and shining. Abdomen a little longer than the head and thorax united. Wings: the lateral cloud extending from near the termination of the transverse basal nervure to the areolet; the apical cloud broader and commencing beyond the apex of the stigma; the areolet oblique, horseshoe-shaped, and with the nervures curved, touching at the top.

This is a stouter insect than *M. championi*; with more black on the thorax, the black extending down to near the end of the scutellum (which is itself not marked with black), and there is a triangular black band on the front of the pronotum; the hind femora are only slightly black at the extreme base. The metanotal areæ do not show any appreciable difference, nor do the wings.

3. **Microdus championi.** (Tab. XVI. fig. 12, ♂.)

Niger, antennis, capite, mesonoto, abdominis apice late, coxis, femoribus, apice tibiarum tarsisque posticis nigris, ore facieque flavis; alis flavo-hyalinis, stigmate flavo cum basi nigra. ♂.
Long. 10 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ stout, tapering very perceptibly towards the apex, densely pilose. Face strongly punctured. Frontal depressions moderately deep, wide. Mesonotum punctured, but not strongly, the middle lobe with a broad V-shaped depression at the base.

Metanotum with the two basal areæ small, acute at the apex; of the middle areæ the central one is triangular at the base, transverse at the apex, that next to it being also acute at the base; there are five apical areæ, the central of which is a little dilated towards the apex, and the inner lateral one smaller than the outer; all the areæ are smooth and shining. Abdomen a little longer than the head and thorax united.

4. **Microdus peronatus.** (Tab. XVI. fig. 16, ♂.)

Luteus, antennis, capite, medio coxarum posticarum, femoribus, tarsis, apice tibiarum posticarum abdominisque apice nigris; alis flavo-hyalinis, fusco bifasciatis, stigmate flavo cum basi nigra. ♂ ♀.
Long. 11 millim.

Hab. PANAMA, Bugaba, David in Chiriqui (*Champion*).

Antennæ stout, distinctly tapering towards the apex, a little longer than the body, densely pilose; beneath brownish. Face densely pilose, shining, the central part obscurely punctured; the cheeks close to the eyes rugose; the oral region broadly testaceous; tips of the mandibles black; palpi yellow. Thorax shining; the mesonotum punctured, its middle lobe with two shallow furrows. Metanotum obscurely reticulated between the keels; with five basal, two wide lateral, a narrow Λ-shaped central, and four apical areæ, the central basal areæ not being continued to the apex. Abdomen distinctly longer than the head and thorax united, compressed; sheaths of the ovipositor pilose, black, brownish at the apex. Fore wings with the central fascia faint, but extending from the end of the transverse basal nervure to the base of the areolet; the apical fascia about one half broader; areolet oblique, the nervures not much curved, not meeting at the top. The male similar to the female, but with the apex of the abdomen obscure fuscous.

This is a larger insect than *M. coxalis*; with the abdomen distinctly longer than the head and thorax united (in *M. coxalis* it is not much longer than the thorax); the metanotal areæ more clearly defined; and the punctuation on the mesonotum stronger, almost rugose.

It will be observed that *M. peronatus* differs from *M. coxalis* exactly in those points in which *M. championi* differs from *M. pulchripennis*.

5. **Microdus coxalis.**

Luteus, capite, antennis, coxarum posticarum, apice tibiarum posticarum tarsisque posticis nigris; alis flavo-hyalinis, fusco bifasciatis, stigmate flavo cum basi nigra. ♀.
Long. fere 9 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ stout, closely pilose, brownish beneath. Face densely covered with fuscous hair; shining, bearing some scattered punctures; oral region testaceous, running into brownish; mandibles black at the tips; palpi yellow. Thorax shining; the mesonotum finely punctured, the punctures widely separated; the metapleuræ shining; the meta-

notum with numerous ill-defined areæ. Abdomen a little shorter than the head and thorax united; shining, the apex covered with rather long fulvous hair; sheaths of the ovipositor black, pilose, their apices fuscous.

b. *Body reddish; wings uniformly fuscous or blackish.*

The species in this section are smaller than those in the preceding, and are reddish, not yellow, in coloration. They also have the ovipositor longer.

6. **Microdus maculipes.**

Ferrugineus, antennis, trochanteribus posterioribus, apice tibiarum posticarum tarsisque posticis nigris; alis fumatis. ♂.
Long. 8 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

Antennæ microscopically pilose, the flagellum inclining to fuscous on the underside. Face obscurely punctured; tips of the mandibles black; frontal depression separated into two by a wide furrow. Mesonotum sparingly punctured, the middle lobe not very distinctly separated. Metanotum deeply transversely sulcated at the base; with three short central areæ (the lateral of which are a little longer than broad, rounded at the base, and narrowed towards the apex), and three apical areæ (the lateral ones very deep); all the keels stout and projecting. Abdomen a little longer than the head and thorax united, somewhat dilated towards the apex. Areolet slightly oblique, narrow; the nervures straight, united at the top.

7. **Microdus femoratus.** (Tab. XVI. fig. 17, ♀.)

Ferrugineus, capite, antennis, sterno, pleuris pedibusque nigris, ore femoribusque posticis rufis; alis fuscis. ♀.
Long. fere 7 millim.; terebra 1·5 millim.

Hab. MEXICO, Northern Sonora (*Morrison*).

Antennæ microscopically pilose, as long as the body. Head shining, impunctate, the sides and the lower part covered with silvery-white hair. Thorax shining, impunctate, the sides covered with silvery-white hair; metanotum without keels, except a transverse one at the base and a longitudinal one at the sides. Abdomen a little shorter than the head and thorax united; with a large triangular red space on each side on the pleuræ above in front. Knees testaceous, the spurs white, the fore tibiæ and tarsi more or less obscure testaceous in front. Areolet narrow, oblique; the nervures straight, united at the top.

B. *Abdomen with a broad, deep, transverse, smooth depression on the second and third segments; petiole raised in the centre; ovipositor longer than the abdomen.*

1 (4). Body black, reddish at the base of the abdomen.
2 (3). Wings uniformly blackish, the apex of the metanotum red, the base of the abdomen red above . . . . . *basimacula.*
3 (2). Wings lacteous at the apex, the thorax entirely black, the base of the abdomen not black above . . . . . *simulatrix.*
4 (1). Body red . . . . . *albitarsis.*

8. **Microdus basimacula.** (Tab. XVI. fig. 19, ♀.)

Niger, abdominis basi late apiceque metanoti rufis; alis fuliginosis. ♀.
Long. 13 millim.; terebra fere 14 millim.

Hab. Mexico (*Sallé*).

Antennæ somewhat shorter than the body, microscopically pilose, tapering perceptibly towards the apex. Head semiopaque, the face punctured; frontal depression deep, continuous, extending to the hinder ocelli. Thorax not very shining; the mesonotum faintly shagreened, its middle lobe raised and clearly separated; the metanotum irregularly rugosely reticulated. Abdomen shining, impunctate. Petiole raised in the centre into a tongue-shaped area, narrow towards the apex; the sides at the apex excavated; the sides of the area raised considerably at the base. Second segment with a broad, deep, transverse furrow in the middle at its apex, and the third segment with a similar furrow; the first and third segments slightly interrupted in the centre. Areolet narrow; the nervures straight, uniting at the top.

9. **Microdus simulatrix.** (Tab. XVI. fig. 14, ♀; Tab. XVII. figg. 2 *a*, maxilla; 2 *b*, labium.)

Niger, basi abdominis subtus testaceo; alis fuliginosis, apice lacteis. ♀.
Long. 13 millim.; terebra 14 millim.

Hab. Guatemala, near the city (*Champion*).

Antennæ scarcely so long as the body, densely and shortly pilose, the tips curled. Head shining, covered with a blackish pile; a long, rather deep, fovea a little below the antennæ, and a roundish one on the lower part of the face; a broad and deep excavation above each antenna, and another broad excavation on the vertex on either side of the ocelli. Thorax shining, impunctate, covered with a blackish pubescence; middle lobe of the mesonotum distinct, the dividing sutures deep, broad, two furrows down its centre; metanotum shining, impunctate, the apex subvertical, a keel at the top, a triangular area (surrounded by a deep and wide furrow, and at the apex by three foveæ) in the centre, and a stout keel at the sides; metapleuræ covered with shallow punctures, bounded behind by a stout keel, depressed in the centre, with three large foveæ at the bottom, and excavated in front (especially above, lower down the depres-

sion bears short thick keels, this being also the case on the opposite depression on the mesopleuræ). The breast is furrowed deeply in the centre, the furrow bearing short thick keels. Abdomen about one half longer than the thorax. Petiole excavated at the base, longer than the second segment; a deep, wide, rather long depression on either side on the basal three fourths, the depression narrowest at the base, the central part of the base margined at the edges where it bounds the depression. Second segment depressed at the base and down the sides, with a broad and deep transverse depression on either side in the centre, the depression separated only by a narrow partition in the middle; third segment with a broad and deep excavation at the base; fourth segment with a moderately broad and deep transverse depression (narrower and shallower than that on the second segment) on either side in the middle. The abdomen bears a short black pubescence. Areolet complete, longer than broad.

10. **Microdus albitarsis.**

Ferrugineus, capite, antennis, prosterno pedibusque nigris, tarsis albis; alis fuliginosis.
Long. 13 millim.

Hab. Mexico (*Sallé*).

Head shining, microscopically pilose in front; face punctured; frontal depression moderately deep, continuous. Thorax shining, the mesonotum finely punctured, the metanotum strongly rugosely reticulated. Petiole with the basal half raised in the centre, the raised part becoming gradually narrower from the base to the apex. Second segment with a stout keel down the sides; the furrows as in *M. basimacula*.

2. *Suturiform articulation distinct, striated, narrow; base of the abdomen more or less longitudinally striated.*

1. Outer nervure of the areolet obsolete; thorax and the base of the abdomen ferruginous . . . . . *melanocephalus.*
2. Areolet shortly petiolate; thorax and the base of the abdomen black . *montivagus.*

11. **Microdus melanocephalus.**

Ferrugineus, capite, antennis, basi metanoti pedibusque nigris, geniculis, coxis posticis supra femoribusque posticis rufis; alis fuscis. ♂.
Long. 6·5 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ rather slender, not densely pilose. Head impunctate, shining; face sparsely covered with pale hair; a large depression over each antenna. Thorax shining, the metanotum rather strongly punctured (especially at the base) and indistinctly keeled; the sides covered with rather long white hair. Petiole and the base of the second segment slightly longitudinally striated. Second segment with a transverse striated

furrow in the centre, and another furrow at the apex, the third segment with a broader furrow a little before the middle; the surface of the segments before and behind these furrows longitudinally striated. The apical segments each bear a row of white hairs. Legs covered with a dense white pile; the hind coxæ red, except at the apex beneath; the hind tibiæ broadly in the middle, and the base of the hind tarsi, obscure testaceous, the spurs clear testaceous. Wings: the outer nervure of the cubitus completely obliterated, as is also the cubital nervure beyond the areolet; the nervures at the apex, and the stigma on the lower side, fuscous.

12. **Microdus montivagus.** (Tab. XVI. fig. 18, ♀.)

Niger, abdominis segmentis 2°–7ᵐ rufis; alis fuscis. ♀.
Long. 5 millim.; terebra 4·5 millim.

Hab. Mexico, Ciudad in Durango 8100 feet (*Forrer*).

Antennæ 29-jointed, as long as the body, closely pilose. Head shining, impunctate, rather closely covered with a greyish pile. Thorax shining, impunctate, the sides densely covered with silvery-white pubescence; metanotum with some indistinct keels, which do not enclose regular areæ. Abdomen not much longer than the head and thorax united; petiole deeply excavated in the centre at the base, the central part raised, sharply margined, and with some longitudinal striations; a narrow transverse striolated furrow in the centre of the second segment, and a less distinct one near the base of the third segment; an oblique furrow on either side of the second segment at the base. Areolet narrow, triangular, shortly pedunculated.

AGATHIRSIA.

Agathirsia, Westwood, Tijdschr. voor Ent. xxv. p. 20 (1882).

This genus apparently only differs from *Microdus* in the labium being greatly elongated, forming a sort of rostrum. The four described species are from Mexico.

1. **Agathirsia rufula.**

Agathirsia rufula, Westw. Tijdschr. voor Ent. xxv. p. 21, t. 5. ff. 1–4[1].

Hab. Mexico, Chapultepec (*Coffin*[1]).

2. **Agathirsia rufiventris.**

Agathirsia rufiventris, Westw. Tijdschr. voor Ent. xxv. p. 21, t. 5. ff. 5–8[1].

Hab. Mexico (*Coffin*[1]).

3. **Agathirsia proxima.**

Agathirsia proxima, Westw. Tijdschr. voor Ent. xxv. p. 22[1].

Hab. Mexico (*Coffin*[1]).

4. **Agathirsia fulvo-castanea.**

Agathirsia fulvo-castanea, Westw. Tijdschr. voor Ent. xxv. p. 22, t. 5. ff. 9, 10[1].

Hab. MEXICO (*Coffin*[1]).

AGATHONA.

Agathona, Westwood, Tijdschr. voor Ent. xxv. p. 22 (1882).

This genus was founded upon a single species from Mexico.

1. **Agathona sericans.**

Agathona sericans, Westw. Tijdschr. voor Ent. xxv. p. 23, t. 5. ff. 11–15[1].

Hab. MEXICO, Chapultepec (*Coffin*[1]).

Division **POLYMORPHI.**

This is an artificial division used here solely for convenience in arranging the species of our fauna.

MACROCENTRUS.

Macrocentrus, Curtis, Ent. Mag. i. p. 187 (1833).

1. **Macrocentrus delicatus.** (Tab. XVII. fig. 5, ♂.)

Macrocentrus delicatus, Cresson, Trans. Am. Ent. Soc. iv. p. 178 (♂ ♀)[1].

Hab. NORTH AMERICA, Eastern, Middle, and Western States[1].—MEXICO; PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

As I am not quite sure whether the specimen from the State of Panama is identical with *M. delicatus* (a very variable species) I give a description of it:—

Testaceus, vertice, mesonoto, abdominis dimidio apicali flagelloque antennarum supra nigris; alis fere hyalinis, stigmate testaceo, nervis fuscis. ♂.
Long. 11 millim.

Antennæ longer than the body, covered with a stiff pile; the scape bare, shining. Head shining, the face sparsely punctured, with a furrow running from each antenna down to the clypeus, the furrows converging as they reach it; clypeus small, gradually narrowed towards the apex; palpi long, pilose. Thorax shining, sparsely punctured; metanotum transversely reticulate-striate; lobes of the mesonotum distinct; a deep and wide hollow, narrowed towards the apex, in front of the scutellum. Abdomen more than twice the length of the thorax; almost shining; petiole long, narrow, obscurely punctured, tuberculated before the middle, and longer than the second segment; the third and following segments obscurely pitted, and covered with a close, moderately long, pale pile. Legs long and slender; the long spur of the hind tibiæ reaching nearly to the middle of the metatarsus. Wings: first abscissa of the radius

a little shorter than the second; the first transverse cubital nervure very oblique and bullated at the bottom; the transverse humeral nervure received a little in front of the transverse basal nervure; the recurrent nervure considerably in front of the first transverse cubital; the second cubital cellule at the apex scarcely half the width of the base, and the radial and cubital nervures branch upwards and downwards from it respectively.

ZELE.

Zele, Curtis, Brit. Ent. p. 415 (1832); Haliday, Ent. Mag. iii. p. 140 (1835).
Phylax, Wesmael, Nouv. Mém. Acad. Brux. ix. p. 162 (1835).

1. **Zele fuscicornis.** (Tab. XVII. fig. 4, ♀.)

Rufo-testaceus, pleuris sordide flavis, scapo antennarum et vertice nigris; alis hyalinis, nervis fuscis, stigmate testaceo. ♀.
Long. 10–11 millim.

Hab. GUATEMALA, Paso Antonio 400 feet (*Champion*).

Antennæ longer than the body, densely covered with stiff black pile. Face transversely striated; front excavated, shining; occiput with some scattered punctures; palpi very long; tips of the mandibles blackish; clypeus smooth. Mesonotum with some large, scattered punctures; parapsidal furrows deep; a large and deep depression at the base of the scutellum; pleuræ shining, impunctate; a longitudinal depression over the sternum; metanotum blistered. Abdomen longer than the head and thorax united; compressed, the apex obliquely truncated; petiole semiopaque, closely and rather strongly punctured, longer than the second segment, the sides margined and very slightly dilated towards the apex; second segment punctured; the other segments obscurely punctured, the apical one covered with a rather long dense fulvous pile; ovipositor scarcely projecting. Legs rather long, stout, the base of the femora and the tibiæ paler, the hind femora of a more reddish hue than the body. Second cubital cellule longer than the first transverse cubital nervure, the base almost twice as wide as the apex; cubitus broadly curved at the base.

OPIUS.

Opius, Wesmael, Nouv. Mém. Acad. Brux. ix. p. 115 (1835).

1. **Opius mexicanus.** (Tab. XVII. fig. 14, ♀.)

Ferrugineus, nitidus, antennis pedibusque nigris; alis fumatis. ♀.
Long. 4 millim.

Hab. MEXICO, Chapultepec (*Bilimek*).

Antennæ stout, longer than the body, the flagellum closely pilose. Head broader than the thorax; face below the antennæ indistinctly keeled in the centre; front hollowed, but not deeply; ocelli in a black patch; clypeus finely punctured; tips of

the mandibles black. Thorax stout; parapsidal furrows obscurely indicated in front; scutellum longer than broad, narrowed towards the apex; an oblique furrow below the point of insertion of the fore wings; metanotum gradually sloping to the apex, with an obscure keel down the centre, and irregularly punctured on either side of the keel. Abdomen elongate ovate; if anything shorter than the head and thorax united; petiole smooth, shining, and with a shallow furrow on either side. Wings: the tegulæ black; the transverse pobrachial nervure received in the basal fourth of the cellule; the recurrent nervure in front of the transverse cubital, the cubitus being angled where it is received; the second cubital cellule at the apex not half the length of the base; the cubitus nearly complete. Legs stout, densely pilose.

CALYPTUS.

Calyptus, Haliday, Ent. Mag. iii. p. 128 (1835).
Brachistes, Wesmael, Nouv. Mém. Acad. Brux. ix. p. 110 (1835).

A genus of small extent, found in Europe, North America, and Mexico.

1. **Calyptus mexicanus.**

Calyptus mexicanus, Cresson, Canad. Ent. iv. p. 229 (♂)[1].

Hab. Mexico, Orizaba (*Sumichrast*[1]).

PYGOSTOLUS.

Pygostolus, Haliday, Ent. Mag. ii. p. 459 (1834).

I am somewhat doubtful if the species here described belongs to this genus.

1. **Pygostolus (?) sonorensis.**

Luteus, pedibus pallide testaceis; alis hyalinis, nervis fuscis, stigmate pallide flavo. ♀.
Long. 6·5 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Antennæ longer than the body, the flagellum covered with a stiff sparse microscopic pile; the basal joints slightly oblique at the apex. Face sparsely punctured, especially above, paler than the vertex; clypeus broadly rounded. Thorax shining, the mesonotum obsoletely punctured; scutellum very shining, a large depression, punctured and keeled down the centre, at its base, the scutum on either side of it striated; metanotum irregularly striated and punctured. Abdomen scarcely so long as the thorax; the petiole obscurely striated and punctured, and shorter than the second segment; the other segments impunctate, the apical one covered with a pale pile; ovipositor not projecting. Wings large: the first abscissa of the radius shorter than the second; the transverse humeral nervure received a little in front of the transverse basal nervure; the recurrent nervure nearly interstitial; the second cubital cellule at the apex twice the width of the base.

TOXONEURON.

Toxoneuron, Say, Bost. Journ. Nat. Hist. i. p. 259 (1835); Complete Writings, ii. p. 710; Cresson, Canad. Ent. v. p. 66 (1873).
Tenthredoides, Cresson, Proc. Ent. Soc. Phil. iv. p. 290 (1865).

1. Toxoneuron æthiops.

Toxoneuron æthiops, Cresson, Canad. Ent. v. p. 67 (♀) [1].

Hab. Mexico, Cordova (*Sumichrast* [1]).

2. Toxoneuron orizabæ.

Toxoneuron orizabæ, Cresson, Canad. Ent. v. p. 67 (♂) [1].

Hab. Mexico, Orizaba (*Sumichrast* [1]).

3. Toxoneuron mexicanum.

Toxoneuron mexicanum, Cresson, Canad. Ent. v. p. 67 (♂ ♀) [1].

Hab. Mexico, Cordova (*Sumichrast* [1]).

4. Toxoneuron thoracicum.

Toxoneuron thoracicum, Cresson, Canad. Ent. v. p. 68 (♂ ♀) [1].

Hab. Mexico, Cordova (*Sumichrast* [1]).

5. Toxoneuron seminigrum. (Tab. XVII. fig. 7.)

Tenthredoides seminiger, Cresson, Proc. Ent. Soc. Phil. iv. p. 291 (♂ ♀)[1].
Toxoneuron seminigrum, Cresson, Canad. Ent. v. p. 69 [2].

Hab. North America, Colorado [1 2].—Mexico, Presidio (*Forrer*).

In coloration the two specimens from Presidio do not quite agree with the description. The metanotum in the female is almost without any black, in the male it has the base and apex rufous; in the female the anterior femora are lined with black on the lower side in the middle; in the male the four anterior femora are almost entirely black; in both sexes there is a large black mark on the centre of the mesothorax (but largest in the female), and a smaller black mark (in the female almost confluent with the central black mark) on the lateral lobe; in neither sex is there a black mark on the base of the abdomen. The tegulæ are black in both specimens, and the wings are paler at the base.

† 6. Toxoneuron ornatum.

Toxoneuron ornatum, Cresson, Canad. Ent. v. p. 69 (♂) [1].

Hab. Mexico, Cordova (*Sumichrast* [1]).

7. **Toxoneuron croceum.** (Tab. XVII. fig. 8.)

Pallide flavum, macula magna metanoti abdominisque dorso ex parte nigris; alis hyalinis, fascia substigmatali fumata, stigmate nigro.

Long. $5\frac{1}{2}$ millim.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Head very finely and closely punctured, the clypeus aciculated; covered with a sparse whitish pubescence; face bluntly keeled; clypeus rounded; tips of the mandibles, and the spot covering the ocelli, black; a **V**-shaped, deep, furrow below the ocelli. Thorax closely and finely punctured, more strongly so than the head; the pleural sutures strongly striolated; the space on either side of the scutellum, and the metanotal suture, strongly striolated, black. Metanotum with a line on each side, and the apex broadly, black; the apex with an oblique slope; the sides obscurely striated. Abdomen longitudinally striated; a broad mark on either side of the first segment, a somewhat triangular mark on either side of the second (the broad end at the apex), and the greater part of the third segment, black; the extreme apex more shining, and not striated like the rest of the surface. Legs pale lemon-yellow; the coxæ finely punctured. Wings: the alar nervures obscure testaceous; the second cubital cellule narrowed towards the apex, the part of the cubitus bounding it distinctly curved; the recurrent nervure received about half the length of the first abscissa of the radius in front of the first transverse cubital nervure; the transverse discoidal nervure a slightly shorter distance in front of the transverse basal; the first discoidal cellule nearly one half longer than the second cubital cellule; the first abscissa of the radius nearly equal in length to the second, and not half the length of the second abscissa of the cubitus.

OLIXON.

Antennæ 13-jointed; the joints elongated, those of the flagellum of nearly equal thickness; the third joint the longest. Head elongated; the face transverse, projecting broadly; clypeus broadly transverse; eyes placed well up, reaching to the top (and not below the insertion of the antennæ); ocelli absent; occiput margined, transverse. Prothorax large, longer than broad, bulging out laterally in front; metathorax toothed laterally; scutellum not defined from the scutum. Abdomen subsessile; petiole broader than long, becoming gradually broader towards the apex, its base margined; the second and third segments more than twice the length of the first; the suturiform articulation obsolete; the fourth segment longer than the petiole; the remaining segments becoming gradually shorter. Ovipositor short, exserted. Anterior coxæ enlarged, the femora short and thick; tibiæ shorter than the femora, and about half the length of the tarsi; hind tarsi more than twice the length of the tibiæ, slender; patellæ of the apical tarsal joints large, acute; tibial spurs stout, reaching nearly to the middle of the metatarsus. Wings abbreviated, reaching a little beyond the apex of the petiole; without nervures.

I am unable to point out the natural position of this curious genus. The elongated fore legs give it the look of a Bethylid, to which, indeed, it bears a general resemblance; but I feel inclined to regard it as a true Braconid.

1. **Olixon testaceum.** (Tab. XVI. fig. 21, ♀ *.)

Testaceum, apice abdominis segmento 2° nigro, coxis antennisque flavis. ♀.
Long. 5 millim.

Hab. PANAMA, Bugaba (*Champion*).

Shining, almost glabrous, the apical segments of the abdomen with a short white pile; mesothorax finely and obscurely punctured.

Division EXODONTI.

ALYSIA.

Alysia, Latreille, Hist. Nat. Gén. Crust. et Ins. xiii. p. 177 (1805).

The majority of the "genera" into which *Alysia* has been divided by Förster appear to me to be untenable, being founded on what I take to be mere specific distinctions.

A. *Anal nervure issuing from the lower part of the posterior discoidal cellule and acutely angled at the base, the lower (and longer) division of it not being on a level with the præbrachial nervure. Second cubital cellule more than twice as long as wide, of nearly equal width throughout. Radial nervure issuing not far from the middle of the stigma. Transverse humeral nervure interstitial or nearly so. Petiole narrow at the base, dilated towards the apex. Antennæ sometimes over* 100*-jointed, more than twice the length of the body.*

1. **Alysia pulchripennis.** (Tab. XVI. fig. 24, ♂.)

Nigra, abdominis segmentis 1°–4^m^ pedibusque rufo-testaceis, tibiis tarsisque posticis nigris, mandibulis palpisque flavis; alis flavo-hyalinis, fusco bifasciatis; tegulis flavis. ♂.
Long. fere 9 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ more than twice the length of the body, 103-jointed, covered with a microscopic pile, the third joint longer than the fourth. Face semiopaque, finely punctured, a shining, narrow line down the centre; covered with longish silvery-white hair. Mesothorax with a few scattered hairs; metathorax covered with long grey hair; a stout keel down the centre of the metanotum. Petiole not much shorter than the second segment, with a tubercle on either side before the middle; the apex of the abdomen acute. Wings: the recurrent nervure received a little beyond the first transverse cubital nervure; in the second cubital cellule the pobrachial transverse nervure is interstitial.

2. **Alysia xanthoptera.** (Tab. XVI. fig. 23, ♂.)

Ferruginea, antennis, capite, femoribus, tibiis tarsisque posticis nigris; alis flavo-hyalinis, apice fumatis. ♂.
Long. 7 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

* Our artist has omitted to indicate the greatly abbreviated wings; and the specimen figured is erroneously stated to be a male on the Plate.

Antennæ more than twice the length of the body, over 100-jointed, microscopically pilose, the third joint longer than the fourth. Pleuræ and metathorax covered with a fulvous pile; a stout keel down the centre of the metanotum. Petiole of nearly equal breadth, slightly tuberculate before the middle. Neuration nearly as in the preceding species.

3. **Alysia longicornis.** (Tab. XVI. fig. 22, ♂.)

Nigra, abdomine rufo-testaceo; alis fumatis, basi flavo-hyalinis. ♂ ♀.
Long. 12 millim.; terebra 1 millim.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Antennæ more than twice the length of the body, over 100-jointed, microscopically pilose. Face sparsely covered with black hair. Pleuræ and breast with thicker and shorter fulvous hair; the metathorax with especially long hair. Metanotum with a stout keel, bifurcated at the apex, down the centre. Petiole dilated laterally on the lower side, the raised part being of nearly equal breadth throughout, and with a narrow furrow along the sides; depressed at the base. The apex of the abdomen is blunt. Wings: the recurrent nervure received in the second cubital cellule; the pobrachial transverse nervure interstitial; the first branch of the radial nervure half the length of the first transverse cubital nervure, the latter straight, as is also the basal nervure.

4. **Alysia erythrogaster.** (Tab. XVI. fig. 25, ♂.)

Nigra, abdomine rufo; alis fusco-violaceis. ♂ ♀.
Long. 6 millim.; terebra 5 millim.

Hab. Panama, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ 58-jointed, the flagellum rather densely microscopically pilose; scarcely twice the length of the body, the third joint shorter than the fourth. Metanotum with a double keel, united at the base, running down the centre. Abdomen a little shorter than the head and thorax united. Petiole subvertical, deeply excavated at the base, the central raised part keeled laterally, the keels reaching to the apex. Wings: first transverse cubital nervure but slightly bent, not elbowed; the recurrent nervure nearly interstitial; the pobrachial transverse nervure received at a greater distance from the latter than is the transverse cubital nervure from the stigma; the cubital nervure distinctly curved before the middle of the first cubital cellule; the first transverse cubital nervure a little more than one half longer than the second.

5. **Alysia championi.** (Tab. XVII. fig. 3, ♂.)

Nigra, nitida, capite, mesonoto abdominisque basi rufis; alis fumatis. ♂.
Long. 7 millim.

Hab. Mexico, Orizaba (*Bilimek*).

Antennæ 46-jointed, scarcely pilose; mandibles, eyes, ocelli, and palpi black. Metanotum with a stout keel in the centre, the base marked with testaceous; the apex semivertical; rugosely punctured. Petiole strongly longitudinally striolated. Wings: the transverse pobrachial nervure received in front of the transverse basal nervure; the recurrent nervure interstitial; the second transverse cubital nervure three fourths of the length of the first; the first abscissa of the cubitus sinuated, the cubitus becoming obsolete a little beyond the second cubital cellule.

B. *Anal nervure issuing from the upper part of the posterior discoidal cellule and not angled at the base, it being nearly on a level with the præbrachial nervure. Second cubital cellule not more than twice as long as wide, much narrowed at the apex. Transverse humeral nervure not interstitial. Petiole broad at the base, generally broader than long.*

a. *Antennæ over* 50*-jointed, the third joint not shorter than the fourth. Apex of the metanotum not vertical, smooth, impunctate. Petiole not subsessile, not longitudinally striate; the second abdominal segment impunctate. Radial nervure issuing from near the apex of the stigma.*

6. **Alysia melanocephala.**

Ferruginea, nitida, antennis, capite pedibusque nigris; alis nigro-violaceis. ♂ ♀.
Long. 8 millim.; terebra 5 millim.

Hab. Panama, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ 61-jointed, densely microscopically pilose, the scape shining; nearly twice the length of the body. Head and body shining, impunctate, the face sparsely pilose. Metanotum with a keel down the centre. Abdomen a little longer than the head and thorax united, the sheaths of the ovipositor black, sparsely covered with longish hair. Legs (especially the tibiæ and tarsi) pilose. Wings: the first transverse cubital nervure curved, elbowed a little before the middle and received in the radial nervure at a little distance from the stigma; the first recurrent nervure nearly interstitial; the transverse pobrachial nervure received about the same distance past the transverse basal nervure as the first cubital is from the stigma.

7. **Alysia bugabensis.**

Nigra, nitida, abdominis segmentis 1°–4ᵐ rufis; alis fuscis. ♂.
Long. 8 millim.

Hab. Panama, Bugaba 800 to 1500 feet (*Champion*).

Apex of the mandibles strongly striated. Metathorax (especially above) inclining to piceous-red, and with a very distinct bifid keel down the centre, the bifurcation taking

place near the base. Petiole deeply excavated at the base, the keels scarcely reaching to the middle. Apex of the abdomen nearly transverse. Legs covered with long black hair. Wings: the first transverse cubital nervure straight and received a little more than half the length of the upperside of the second cubital cellule from the stigma; the recurrent nervure interstitial, the pobrachial transverse nervure nearly so.

8. **Alysia chiriquensis.**

Nigra, nitida, abdomine ferrugineo; alis fuliginosis. ♀.
Long. 8 millim.; terebra 4·5 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ as long as the body and ovipositor united, the joints very closely articulated. Abdomen shorter than the head and thorax united; petiole deeply excavated at the base, becoming gradually broader towards the apex, a tubercle on either side in the middle; the excavated part keeled, the suture at the apex deep. Wings: the recurrent nervure interstitial; the second transverse cubital nervure half the length of the first; the second cubital cellule on the upperside not half the length of the third, and about three fourths of the length of its lower side; the pobrachial transverse nervure received considerably in front of the transverse basal nervure.

Allied to *A. bugabensis*, but is a narrower insect; the second cubital cellule is longer; the pobrachial transverse nervure is received further from the transverse basal nervure; the petiole is much more deeply excavated at the base and tuberculate in the middle; the abdomen is not black at the apex; and the mandibles are not striated.

b. *Antennæ 27-jointed, the third joint shorter than the fourth. Apex of the mesonotum vertical, reticulated. Petiole subsessile, longitudinally striated. Second abdominal segment aciculate. Anal nervure issuing from the middle of the posterior discoidal cellule. Cubital nervure obsolete a little beyond the third cubital cellule.*

9. **Alysia chontalensis.**

Nigra, orbitis oculorum latis, mesonoto ex parte abdomineque rufis; alis fuliginosis. ♀.
Long. 7 millim.; terebra fere 5 millim.

Hab. NICARAGUA, Chontales (*Janson*).

Antennæ scarcely so long as the body, 27-jointed, sparsely covered with rather long hair; the third joint shorter than the fourth, the fourth the longest, the last joint longer than the penultimate. Metanotum with a stout keel across the base and a stouter one down the centre; the lateral keels stout; smooth, shining at the base, reticulated at the apex; the pleuræ rugose, the sutures deep, wide, and crenulate; a deep punctured furrow bordering the breast. Petiole subsessile, finely longitudinally striated; a stout keel on either side of the raised central part at the base; the sides

stoutly keeled and grooved on the inner side of the keel. Second and third segments finely aciculate. Wings: the radial nervure issuing from a little beyond the middle of the stigma; the recurrent nervure received in the second cubital cellule, straight; the transverse humeral nervure received considerably in front of the transverse basal nervure.

CENOCŒLIUS.

Cenocœlius (Haliday), Westwood, Intr. Mod. Class. of Ins. ii. App. p. 62 (1840).
Capitonius, Brullé, Hist. Nat. Ins. Hymén. iv. p. 544 (1846).
Aulocodus, Cresson, Proc. Ent. Soc. Phil. iv. p. 8 (1865).

A remarkable genus which does not fit well into any of the families of parasitic Hymenoptera. In having the abdomen inserted well upon the thorax it agrees with the "Evaniidæ," but differs from them in other respects. It forms a connecting link between the Braconidæ and Evaniidæ. Species are known from the Malay Archipelago, Cuba, South America, and Europe.

1. **Cenocœlius filicornis.** (Tab. XVII. fig. 9, ♀.)

Testaceus, flagello antennarum thoraceque nigris, tarsis posticis fuscis; alis fere flavo-hyalinis, stigmate testaceo. ♀.
Long. 10 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ filiform, of nearly equal thickness throughout, longer than the body. Head shining, the face punctured. Thorax: mesonotum shining, rugose in front and laterally, the pleuræ shining and impunctate; metathorax rugose, and covered with long pale hair, the pleuræ and sternum also covered with hair. Abdomen twice the length of the thorax, narrow, linear.

2. **Cenocœlius nigriceps.** (Tab. XVII. fig. 13, ♀.)

Rufus, antennis, capite pedibusque nigris; terebra quam abdomen longiore; alis fuliginosis; ♂, ore rufo. ♂ ♀.
Long. 12–13 millim.; terebra 6 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet (*Champion*).

Antennæ about as long as the body, the flagellum microscopically pilose, the apex brownish. Head shining, the face semiopaque; closely and rather strongly, the sides to the vertex more irregularly and widely, punctured; frontal depression shining; the oral region laterally and the space below the antennæ rufous; the face (especially on the lower part) sparsely covered with pale hairs, the upper and hinder parts with blackish hair. Pronotum, mesonotum, and scutellum shining, sparsely, indistinctly punctured; the sutures broad, strongly crenulated; mesopleuræ and sternum almost shining, covered (but not closely) with rather large punctures; metathorax rugosely

reticulated. Abdomen shining, impunctate. Legs stout; the coxæ and femora shining, punctured, covered with moderately long fuscous pile; the tibiæ and tarsi opaque, closely covered with rufo-fuscous pile.

In the male the thorax laterally is almost entirely rugose, and the front tarsi are testaceous.

3. **Cenocœlius chontalensis.** (Tab. XVII. figg. 12, ♀; 12 *a*, mandibles.)

Rufo-testaceus, antennis, capite pedibusque nigris; terebra quam corpus longiore; alis fuliginosis. ♀.

Long. 10 millim.; terebra 12 millim.

Hab. NICARAGUA, Chontales (*Janson*).

This insect is very closely related to *C. nigriceps*; it differs as follows:—The ovipositor is much longer; the head is much longer and more narrowed towards the mouth; the thorax is not so strongly punctured; the antennæ and head are entirely black; the abdomen is longer than the head and thorax united (in *C. nigriceps* it is shorter than these parts united), and also narrower (not bulging out in the middle); and the projection in the frontal depression is larger.

4. **Cenocœlius pulcher.** (Tab. XVII. fig. 10, ♂.)

Luteus, vertice, antennis, abdominis apice, tibiis tarsisque posticis nigris; alis flavo-hyalinis, apice fumatis, stigmate flavo. ♂.

Long. 8·5 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Antennæ longer than the body, the flagellum almost bare. Face rugosely punctured, covered with a fulvous pile; vertex shining, impunctate. Mesonotum shining, obscurely punctate; mesopleuræ and sternum shining, a row of large foveæ at their points of junction; metathorax reticulated. Abdomen longer than the head and thorax united, shining, the extreme base obscurely punctured. The cloud in the wing commences at the stigma; the recurrent nervure is scarcely interstitial, being almost received in the second cubital cellule; the second cubital cellule is 5-angled and is longer than broad.

5. **Cenocœlius ornatipennis.** (Tab. XVII. fig. 11, ♀.)

Luteus, antennis, capite, sterno, pleuris, coxis, trochanteribus, apice tibiarum abdominisque apice nigris; alis flavo-hyalinis, fusco-bifasciatis, nervis flavis, stigmate nigro. ♀.

Long. 7 millim.; terebra 8 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ about the length of the body; densely pilose. Head (especially the face) densely pilose; face bearing large separated punctures; front deeply and widely excavated, the hollow with a distinct border and with a keel in the centre running down from the ocelli; mouth, mandibles (except at the apex), and palpi yellow. Thorax above rugosely punctured, the punctures running into reticulations on the metanotum;

a depression on the front of the mesonotum, with a keel in its centre; the sides in front of the scutellum impunctate. Propleuræ excavated, punctured; mesopleuræ impunctate; metapleuræ rugosely punctured; a hollow on the mesopleuræ next the metapleuræ. Abdomen twice the length of the thorax, shining, impunctate. Wings: the second cubital cellule not much longer than broad, narrowed at the apex, the cubitus curved along it; the recurrent nervure interstitial. The middle cloud commences at the base of the stigma and extends to near its apex; the hind wings have only a central cloud.

Fam. STEPHANIDÆ.

This family has been included by many authors among the Evaniidæ, from which, however, it differs in having the abdomen attached to the extremity of the metathorax. The presence of a distinct costal cellule, the globose, tuberculated head, the very thin antennæ, the toothed posterior femora, and the short 3-jointed tarsi (in the female) render the identification of the genus an easy matter.

MEGISCHUS.

Megischus, Brullé, Hist. Nat. Ins. Hymén. iv. p. 537 (1846).

I am inclined to regard *Megischus* as congeneric with *Stephanus*, Jurine; but, as the species are somewhat confused, I prefer to place those here described in *Megischus*, to which in its restricted meaning they actually belong.

Megischus has a wide range over the globe, but comparatively few species have been described. The species are, I think, very variable, but as a very limited number of specimens have been examined, it is not possible to say to what extent the variation extends.

1. **Megischus annulator.** (Tab. XVIII. figg. 7 ♂, 8 ♀.)

Megischus annulator, Brullé, Hist. Nat. Ins. Hymén. iv. p. 539, t. 40. fig. 5; Sichel, Ann. Soc. Ent. Fr. 1865, p. 482, t. 10. figg. 6, *a*, *b*, *c* [1].

Bothrioceros americanus, Sichel, Ann. Soc. Ent. Fr. 1860, p. 761 [2].

Megischus americanus, Sichel, Ann. Soc. Ent. Fr. 1865, p. 480 [3].

Hab. GUATEMALA, San Gerónimo, El Reposo 800 feet (*Champion*).—BRAZIL [1 2 3].

A variable species in colour, sculpture, and size. In the Guatemalan specimens the four anterior legs are brown in the female, of a brighter and redder tint in the male, the latter sex having also the posterior tibiæ and tarsi red. The teeth on the hinder femora vary in number and size. As the male has not been fully described, I give a detailed description of it:—

Head coarsely, transversely rugosely striolated, except behind the eyes, where it is

shining, impunctate, or nearly so. Prothorax above transversely striolated, laterally obliquely striolated, except on the oblique broad furrow, which is only striolated on the sides. Mesonotum strongly transversely striolated, the centre marked with large coarse punctures. Scutellum impunctate in the centre, the sides with large punctures. Mesopleuræ shining, bearing large, round, clearly separated punctures. Metapleuræ with a large, shining, impunctate, oblique depression (narrow at the base), the Λ-shaped projecting part behind it rugosely punctured; in front of this latter is another large, shining, impunctate space. Metanotum strongly punctured, the punctures more widely separated at the sides; there is a wide furrow on either side, which does not reach the base. Petiole striolated as in the allied species, as long as the following three segments united. The apical segments are finely aciculated, and have a few minute punctures, and laterally bear at the apex a sparse fringe of pale fulvous hair. Hind coxæ irregularly striolated, shining. Hind femora shagreened; the basal tooth a little longer and stouter than the apical one: there are four teeth between these (of which the basal one is the longest and the second the stoutest), and four teeth behind the large apical one (the first the largest, the others becoming gradually smaller). The thickened apical part of the hind tibiæ is shagreened. The metatarsus is about one third longer than the other two joints united; at the apex and on the second joint is a thick brush of fulvous hair. The body and legs are sparsely covered with long pale hair; the anterior tibiæ and tarsi thickly pilose.

2. **Megischus niger.** (Tab. XVIII. fig. 19, ♀.)

Megischus niger, F. Smith, Trans. Ent. Soc. Lond. 1862, p. 44 (♀) [1].

Hab. Guatemala, Panzos and Teleman in Vera Paz (*Champion*); Panama (*Stretch* [1]).

This is probably only a form of *M. annulator*. Compared with the Guatemalan specimens of the latter, it has the body darker, the eyes with scarcely any red, and the wings not suffused with fuscous; the body and legs are less pilose, and the puncturing on the pleuræ is much less distinct.

3. **Megischus ruficeps.** (Tab. XVIII. fig. 9, ♀.)

Niger, capite rufo; alis fere hyalinis, ♀.
Long. 19 millim.; terebra 25 millim.

Hab. Panama, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ very slender, about two thirds the length of the body; the scape thick, twice the length of the second joint; the third joint as long as the scape, and shorter than the fourth joint; the flagellum bears a few hairs. Head deeply rugosely striolated, except behind the eyes; palpi very long, black; tips of the mandibles black, striolated. Prothorax above in front coarsely transversely striolated; behind finely striated. Mesonotum irregularly transversely striolated. Scutellum shining, impunc-

tate in the centre; laterally bearing some large scattered punctures. Metanotum shining, marked with large, widely separated punctures. Pro- and mesopleuræ semi-opaque, aciculated, but not strongly; metapleuræ rugose, opaque. Petiole a little compressed laterally, irregularly but closely striolated, as long as the following five segments united, and bearing some long scattered hairs. Apical abdominal segment oblique, ending above in a sharp point. Legs shining, impunctate; hind coxæ striolated, strongly and distinctly so towards the apex, the inner side densely pilose, the other parts bearing long scattered hairs; tibiæ and tarsi covered with a dense, shining, fulvous pubescence. The anterior tooth on the hind femora is broader than the posterior one, which is not one third its width, through the base not being much broader than the apex; it is also a little longer. Between the teeth the femora are waved, and behind the posterior tooth are four short blunt teeth. Metatarsus more than three times the length of the other joints united. Claws piceous.

4. **Megischus erythrocephalus.**

Long. 20 millim.; terebra 21 millim.

Hab. PANAMA, Buguba 800 to 1500 feet (*Champion*).

Similar in coloration and clothing to *M. ruficeps*, but differing as follows:—The hollows on the pro- and mesopleuræ are reddish, and the mesonotum is obscured with red at the base; the prothorax is longer; the mesopleuræ are striolated; the scutellum has only very few punctures at the sides; the depression at the base of the metanotum is deeper; the metanotum is more strongly punctured; the petiole is stouter and longer than all the other segments united; the second segment is aciculated (not impunctate as in *M. ruficeps*); and the apical segment does not end in a sharp projecting point. The hind femora are a little longer; the basal tooth has not such a broad base; there are four minute teeth (placed at irregular intervals) between the basal and the apical tooth, and behind the latter are three moderately sized, distinctly separated teeth, and behind these again are two minute obtuse ones; there is also a small tooth immediately behind and touching the large tooth. The metatarsus is much thicker, and is not twice the length of the other joints united. The ovipositor is shorter.

MONOMACHUS.

Monomachus (Klug), Westwood, Trans. Ent. Soc. Lond. 1843, p. 252.

This genus is very distinct, and its systematic position is not easily fixed. On the whole, it appears to me to come nearer *Megischus* than to any other described genus; although it departs widely from *Megischus* in the form of the antennæ, head, and legs. The position of the abdomen (it issuing from the point of the metathorax) separates it

from the Evaniidæ. *Pelecinus* does not appear to me to have a very near relationship with it, and, among other differences, it has the trochanters one-jointed.

1. **Monomachus ruficeps.** (Tab. XVIII. fig. 6, ♀.)

Niger, capite, pleuris pedibusque rufo-testaceis; alis fere hyalinis, apice fumatis. ♀.
Long. 22 millim. (abdomine 16 millim.); antennæ 10 millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ scarcely half the length of the body; scape smooth, shining, glabrous; flagellum microscopically pilose, its basal and middle joints a little dilated at the apex; the third joint scarcely so long as the fourth. Face closely and rather strongly punctured, not so shining as the vertex, which is only punctured above the outer ocelli, and there not strongly; the front strongly punctured. The orbits are scarcely punctured; the face bears rather long sparse white hair; the ocelli are in a black patch; the tips of the mandibles are black. Thorax shining, the pleuræ sparsely pilose; the metathorax punctured, laterally more closely than above. The sides of the scutellum are finely rugose. The prothorax is a little broader than long, and bulges out a little at the sides; the parapsidal furrows are complete, narrow, but deep. The petiole is nearly cylindrical, bent downwards in the middle, and shorter than the third segment, the latter being longer than the second segment. The coxæ are shining, impunctate, and for the greater part black above; the femora are sparsely, the tibiæ and tarsi more closely and densely pilose. The metatarsus is nearly double the length of the second joint; the spurs short and thick. The ventral part of the abdomen is more or less testaceous; there is a black splash over the fore coxæ; and the hinder edge of the metapleuræ, the scutellum above, and the pronotum in front are black.

What appears to be a variety has the scape of the antennæ and the petiole obscure testaceous; the coxæ without any black; and the thorax black obscured with testaceous in front.

Fam. EVANIIDÆ.

In this family I place only the genera which have the abdomen inserted in the top of the metathorax.

Subfam. *AULACINÆ.*

From the next subfamily the "Aulacinæ" may be known by the anterior wings having two recurrent nervures, and by the antennæ issuing from a little above the base of the clypeus.

AULACUS.

Aulacus, Jurine, Nouv. Méth. de Class. les Hymén. p. 89 (1807).

A genus of almost universal distribution.

1. **Aulacus hyalinipennis.**

Aulacus hyalinipennis, Westw. Trans. Ent. Soc. Lond. iii. p. 265 (1843) [1].

Hab. Mexico [1].

2. **Aulacus ruficollis.** (Tab. XVIII. fig. 10, ♀.)

Niger, prothorace rufo, tarsis anterioribus testaceis; alis hyalinis, apice fasciaque substigmateli fuscis, stigmate et nervis nigris. ♀.

Long. 9 millim.; terebra 6 millim.

Hab. Guatemala, Torola 1000 feet (*Champion*).

Antennæ filiform, a little longer than the head and thorax united; scape thick, truncated at the apex, one half the length of the second joint; second joint thicker than, and about one half the length of, the third joint; the flagellum microscopically pilose. Face rugose; above the mouth covered with long silvery-white hair; front closely punctured; vertex impunctate. Mandibles piceous at the base. Prothorax coarsely reticulated and striolated; deeply incised above, the edges curved, touching the head a little below the ocelli; longer than broad, a little narrowed in front, truncated behind, depressed in the middle above, the depression with stout keels; there is a deep oblique depression in the pleura. Mesothorax a little shorter than the prothorax; above rugosely reticulated; pleuræ rugosely punctured; scutellum flat. Metathorax rugosely punctured; a deep transverse depression at the base. Abdomen shorter than the thorax; the petiole pyriform, and forming nearly two thirds of the total length of the abdomen. The third and following segments are covered with white pile; the metathorax laterally and below the petiole bearing a longer and denser pile.

Subfam. *EVANIINÆ*.

GASTERUPTION.

Gasteruption, Latreille, Précis Caract. Gén. des Ins. p. 113 (1796).
Fœnus, Fabricius, Ent. Syst. Suppl. p. 240 (1798).

Species of *Gasteruption* are found in most parts of the world.

1. *Middle discoidal cellules separated.*

1. **Gasteruption maculicorne.** (Tab. XVIII. fig. 5, ♀.)

Nigrum, opacum, tegulis, apice antennarum, tibiis femoribusque anterioribus rufo-testaceis, tarsis late medio basique tibiarum albis; alis fere fumatis; ♀ terebra quam corpus fere longiore.
Long. 19 millim.; terebra 18 millim.

Hab. Guatemala, Calderas 6000 feet (*Champion*).

Antennæ with the apical three joints entirely, and the twelfth joint on the underside, rufous; the second and third joints united longer than the scape. Head opaque, nearly alutaceous; the palpi testaceous, except at the apex; the cheeks scarcely so long as the second antennal joint; the space between the hind ocelli not much greater than the length of the second antennal joint, and separated from the eyes by about an equal distance. Pronotum elongated, double the lateral depth, opaque, shagreened, except laterally behind; mesonotum finely transversely striated, behind finely rugosely punctured; scutellum finely, longitudinally rugosely punctured; pleuræ finely rugosely punctured; metanotum coarsely transversely rugose. Hind coxæ shining, finely, transversely striated; hind tibiæ broadly thickened, opaque, shagreened; metatarsus a little longer than the other joints united.

From the following species *G. maculicorne* differs in being larger, in the terebra being much longer, &c.

2. **Gasteruption tenuicolle.**

Gasteruption tenuicolle, Schletterer, Verh. zool.-bot. Ges. Wien, xxxv. p. 291 (1885)[1].

Hab. Mexico, Orizaba (*Bilimek*[1]).

2. *Middle discoidal cellules united, the nervure being obsolete.*

3. **Gasteruption sericeum.** (Tab. XVIII. figg. 3 ♀, 4 ♂.)

Nigrum, argenteo pilosum, basi tarsorum anterioribus basique tibiarum albis, abdomine lateribus tegulisque rufo-testaceis; ♀ terebra quam dimidio abdomen longiore. ♂ ♀.
Long. 11–13 millim.; terebra 5–6 millim.

Hab. Guatemala, San Gerónimo (*Champion*).

Flagellum rather attenuated at the base; the third joint equal in length to, if not shorter than, the first and second joints united, and shorter than the fourth joint. Head in the centre (except on the front), and on the vertex, densely covered with a close silvery-white pubescence, impunctate, the vertex shining; the cheeks a little shorter than the second joint of the antennæ; the hinder ocelli separated from each other by a space about equalling the length of the scape, and from the eyes by about the length of the second joint. Prothorax short, not much longer than its lateral depth, covered with a thick close silky pile; above finely rugose. Mesonotum opaque,

coarsely, transversely rugosely striated, the lateral lobes not so strongly as the middle ones; scutellum strongly aciculated; pleuræ shagreened below and, as well as the sternum, thickly covered with a silvery pubescence; metanotum almost shining, irregularly transversely roughened. Abdomen opaque, shagreened, the basal three segments on the lower side testaceous. Hind coxæ finely but obscurely striated laterally; hind tibiæ considerably thickened, opaque, shagreened; spurs testaceous; metatarsus longer than all the other joints united.

The male has the tips of the antennæ rufous, and the sculpture on the pleuræ (especially behind) much stronger.

The base of the four anterior tarsi is broadly white; all the tibiæ are white at the base; the front tibiæ incline to testaceous; and the tegulæ are testaceous.

The colour of the legs varies, as does also the intensity of the sculpture on the thorax.

EVANIA.

Evania, Fabricius, Syst. Ent. p. 345 (1775).
Hyptia, Illiger, in Rossi's Fauna Etrusca, ii. p. 81 (1807).
Brachygaster, Stephens, Ill. Brit. Ent. Mand. vii. p. 118 (1835).

Upwards of 50 species of *Evania* have been described, from all parts of the globe, and one or two appear to be cosmopolitan. So far as we know, the species are parasitic on Blattidæ.

A. *Radial and cubital nervures* (*except in* E. nitida) *complete, or the cubital nervure faint from the second cubital cellule. Antennæ rather long, the joints elongated. Hind legs very long.* (Species 1–13.)

i. *Forks of the metasternal process diverging.* (Species 1–3.)

a. *Face carinate in the centre and more indistinctly so laterally. Thorax in front rounded.* (Species 1 and 2.)

1. **Evania tinctipennis.** (Tab. XVII. figg. 16, 16 *a–c*, ♀.)

Nigra, facie et fronte lævis, nitidis; petiolo dimidio apicali coxisque posticis punctatis; alis fere fumatis. ♀. Long. 11–12 millim.

Hab. Costa Rica, Cache (*Rogers*); Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

The lower part of the face, the pleuræ, the metanotum, the apical three segments of the abdomen above, and the third antennal joint are densely covered with a silvery-white silky pile; the legs are less densely covered, and the pile on them is darker; the pile on the other parts of the thorax is much shorter and fuscous; the petiole has a

short fuscous pile; and the rest of the abdomen, except the apical segments above, is glabrous. The antennæ are thickened towards the apex; the scape is as long as the third joint, the latter being longer than the following two joints united; the fourth joint is longer by about one sixth than the fifth joint. The eyes are more or less greenish. The face is rather sharply carinate; and there is a less well-defined keel on either side, this keel being placed nearer to the eyes than to the central keel. The front below the antennæ projects and is margined; above the antennæ it is depressed. The head is faintly alutaceous, almost shining. The pronotum is deeply excavated, the sides of the excavation margined. The mesonotum is almost opaque; the sides are margined, and have a furrow on the inner side of the margin; the parapsidal furrows reach nearly to the base, and are moderately deep and curved; the surface bears large, distinctly separated punctures, the sides being minutely striated. The scutellum has a somewhat indistinct furrow in the centre, and is, if anything, more strongly punctured than the mesonotum. The mesopleuræ are covered with large shallow punctures, except a large space in front. The sternum is apparently impunctate, and densely covered with silvery-white pile. The metanotum is largely rugosely reticulated, the metapleuræ less strongly so; the lateral furrow is wide, and bears oblique widely-set-apart keels. The petiole is as long as the upper part of the following three segments united, opaque, impunctate at the base, densely covered with fuscous pile; the apical half bears large punctures. The long hind legs are opaque; the tarsi bear a few stiff bristles on the underside; the spurs are a little more than one third of the length of the metatarsus; the claws on the underside are rufous; the coxæ are pitted sparsely towards the base and beneath; the metatarsus is a little longer than the second and third joints united. The wings are more or less fuscous-tinted throughout, but more deeply so at the base; there is a narrow oblique smoky cloud in the first cubital cellule, and the apex is smoky; the recurrent nervure is curved, and is scarcely interstitial; the second cubital cellule is longer than the third; the second transverse cubital nervure is almost obsolete.

2. **Evania albo-facialis.** (Tab. XVII. fig. 17, ♂.)

Nigra, facie alba, punctata; thorace antice rotundato; petiolo coxisque posticis punctatis; alis fere fumatis. ♂. Long. 11–12 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

The face, the sternum, pleuræ, metanotum, and coxæ are densely covered with silvery-white pile, the rest of the body with fuscous pile. The scape is about half the length of the third antennal joint, the latter about one fourth longer than the following joint; from the fourth the joints are slightly bent and dilated at the apex. The face is sharply keeled in the centre, and closely and rather strongly punctured; the central keel is for the greater part black. Front not much depressed, alutaceous. Mesonotum shining, sparsely punctured. Parapsidal furrows not very deep, curved, not reaching

to the base; the furrows along the tegulæ wider and deeper. Scutellum almost shining, covered with shallow clearly separated punctures. Pronotum finely punctured; mesopleuræ impunctate, except on the lower part, this part being pitted with round shallow punctures. Metathorax reticulated, the lower region of the pleuræ less strongly so. Petiole covered with large punctures, opaque. Hind coxæ covered with large punctures; tarsi covered with a stiff fuscous pile, without bristles, except at the apex of each joint; the hind spurs are a little more than one third of the length of the metatarsus; the claws and front spurs are reddish, and the apex of the anterior femora and tibiæ are obscure white in front. Wings obscured with a smoky tint, the space below the costa fuscous; the apex and an oblique cloud in the first cubital cellule darker; the recurrent nervure is interstitial.

The male of *E. tinctipennis* is unknown to me, as is the female of the species described above. I scarcely think *E. albo-facialis* can be the male of *E. tinctipennis*, the difference in the sculpture of the head being so marked. I am not aware that the sexes of *Evania* differ in sculpture to any appreciable extent.

b. *Face not carinate. Thorax transverse in front.* (Species 3.)

3. **Evania appendigaster.**

Ichneumon appendigaster, Linn. Syst. Nat. ed. xi. p. 566.
Evania appendigaster, Fabr. Syst. Ent. p. 345.
Evania flavicornis, Oliv. Encycl. Méth. vi. p. 453.
Evania fuscipes, Illig. in Rossi's Fauna Etrusca, ii. p. 83; Spinola, Rev. Zool. 1840, p. 246; Westwood, Trans. Ent. Soc. Lond. new ser. i. p. 213; Schletterer, Verh. zool.-bot. Ges. Wien, 1886, p. 10.
Evania lævigata, Oliv. Encycl. Méth. vi. p. 453; Latr. Gen. Crust. et Ins. iii. p. 251.
Evania affinis, Le Guillou, Ann. Soc. Ent. Fr. x. p. 311.
Evania unicolor, Say, Long's 2nd Exped. p. 320; Complete Writings, i. p. 214.

Hab. North America.—Mexico, Presidio (*Forrer*); Guatemala, San Jose de Guatemala (*Champion*).—Europe, &c.

This species is known to be parasitic on *Periplaneta orientalis*, and is found all over the temperate and tropical regions of the globe. It was noticed by Mr. Champion on board ship on the Pacific coast.

ii. *Forks of the metasternal process parallel. Thorax truncated in front.* (Species 4–17.)

4. **Evania fascialis.**

Evania fascialis, Spinola, Rev. Zool. 1842, p. 188[1].

Hab. Mexico[1].

a. *Parapsidal furrows distinct.* (Species 5–12.)

1. *Radial and cubital nervures more or less distinct.* (Species 5–11.)

5. **Evania albispina.** (Tab. XVII. fig. 18, ♂.)

Nigra, facie, ore spinisque albis; fronte rugosa; petiolo striolato; coxis posticis rugoso-punctatis; alis fere hyalinis. ♂.
Long. fere 8 millim.

Hab. Panama, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ with the scape not much longer than the third joint, the latter, if anything, shorter than the fourth joint. Head broad, almost transverse, not keeled in the centre of the face; the front not depressed. Face punctured, strongly so laterally; the front closely punctured. Mesonotum transverse in front, flat, shining, very minutely punctured, shining, the lateral lobes obscurely striated in front; parapsidal furrows shallow, the lateral furrows deeper. Mesopleuræ and sternum roughly punctured, except a shining impunctate space in the middle of the former. Scutellum coarsely striated. Metathorax rugosely reticulated. Petiole shining above, with some large shallow punctures towards the apex; the sides bear some stout striations, which go on to the top at the apex; the apex is dilated. The hind coxæ are opaque and coarsely punctured; the spurs are three fourths of the length of the metatarsus; the tarsi bear scattered stiff bristles; the metatarsus is shorter than the second and third joints united. The face, the pleuræ, and metanotum are covered with rather long white pile; the rest of the thorax is more sparsely clothed with fuscous pile; the coxæ are covered with rather long white pile, the femora sparsely on the underside, and the tibiæ and tarsi thickly, with a fuscous pile. The underside of the scape, and the fore coxæ, trochanters, femora, and tibiæ are whitish in front.

6. **Evania maximiliani.**

Evania maximiliani, Schletterer, Verh. zool.-bot. Ges. Wien, xxxvi. p. 28 (1886) [1].

Hab. Mexico, Orizaba (*Bilimek* [1]).

This species may be known from *E. albispina* by the spurs being one third of the length of the metatarsus, besides being black, and the hind coxæ are not punctured. *E. rugifrons* differs from it in the pleuræ being rugosely reticulated, except a small space below the fore wings, and in the front being keeled and the hind coxæ punctured.

7. **Evania rugifrons.** (Tab. XVII. fig. 19, ♂.)

Nigra, mandibulis albo-testaceis; facie et fronte rugosis; coxis posticis punctatis; petiolo lævi. ♂.
Long. fere 7 millim.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Antennæ with the scape a little shorter than the third joint, the latter nearly equal in length to the fourth joint; the middle and apical joints slightly dilated at the apex. Head transverse in front, rugosely punctured, the face covered with long silvery-white hair; a keel down the centre of the front. Mesonotum transverse, shining; the middle lobe bearing large deep punctures, the lateral lobes slightly shagreened. Parapsidal furrows deep, wide; the furrow along the sides crenulated. Scutellum rugosely punctured. Pleuræ rugosely punctured, the punctures running into reticulations; the mesopleuræ in front in the middle impunctate. Metathorax coarsely rugosely punctured. Petiole shining impunctate, double the length of the metanotum. Pleuræ and metathorax densely covered with rather long white pile; a fuscous pile on the mesonotum. The petiole sparsely pilose; the apex of the abdomen above sparsely covered with short greyish pile. Coxæ thickly, the femora more sparsely, covered with a silvery-white pile; tibiæ and tarsi with a short thick fuscous pile. Hind coxæ somewhat coarsely punctured; tibiæ and tarsi covered with a few stiff bristles. Hind spurs reaching nearly to the middle of the metatarsus, the latter as long as the following three joints united. Claws apparently simple. The anterior legs are more or less obscure white in front. The transverse medial nervure is interstitial.

8. **Evania ornaticornis.** (Tab. XVII. fig. 20.)

Nigra, antennarum articulis 2°–4ᵐ apiceque petioli albis; fronte et facie punctatis; coxis posticis fere lævis; petiolo lævi; alis fere hyalinis. ♂ ♀.

Long. 7–8 millim.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Antennæ thick, slightly attenuated towards the apex; the scape as long as the third and fourth joints united; the third joint three times the length of the second, and a little longer than the fourth joint. Head rugosely punctured, the front a little depressed, a keel running down its centre from the ocelli, the space on either side of the keel above the antennæ being finely punctured or shagreened. Face almost transverse, keeled on either side. Mesonotum transverse in front; rugosely punctured, except the inner side of the lateral lobes. Parapsidal furrows moderately deep; there is no lateral furrow. Scutellum rugosely punctured. Pleuræ rugosely reticulated, except beneath the wings on the mesopleuræ, where there is a large shagreened space. Metathorax coarsely rugosely reticulated. Petiole impunctate, nearly twice the length of the metanotum. Hind coxæ indistinctly punctured, shining; hind spurs reaching nearly to the middle of the metatarsus, the latter as long as the following three joints united.

The male has the scape longer and thinner than the female; the third joint is longer compared to the fourth; and, if anything, the thorax is more closely punctured.

9. **Evania azteca.**

Evania azteka, Schletterer, Verh. zool.-bot. Ges. Wien, xxxvi. p. 14 (1886) [1].

Hab. Mexico (*Bilimek* [1]).

This species has the thorax entirely red; the antennæ are entirely black, and have the scape longer than the first three joints of the flagellum together; the petiole is longitudinally striolated; the long spur on the hind tibia is half the length of the metatarsus, the latter being clearly longer than the other joints united; and the head and thorax are densely punctured.

10. **Evania marginata.** (Tab. XVII. fig. 21, ♀.)

Nigra, facie, ore, orbitis oculorum late apiceque petioli rufis; petiolo coxisque posticis punctatis; alis hyalinis. ♀.

Long. 6 millim.

Hab. Guatemala, Capetillo (*Champion*).

Antennæ subclavate; the scape a little longer than the following three joints united; the second joint a little shorter than the third and longer than the fourth joint, the latter being half the length of the third. Head shining, especially on the vertex; the face rugosely punctured; the front and vertex bearing large separated punctures, except above the antennæ, where there is an impunctate space. Eyes very distinctly margined. Collar transverse, margined on the top. Mesonotum shining, bearing some large scattered punctures; parapsidal furrows not very distinct. Scutellum rugosely punctured, semiopaque. Pleuræ shining, marked with scattered punctures. Metathorax rugosely punctured. Petiole twice the length of the metathorax, shining, punctured, the apex not so strongly so. Hind coxæ rather strongly punctured, the trochanters very shining and glabrous; the femora sparsely pilose; the tibiæ and tarsi covered closely with rather long stiff white pile.

11. **Evania varicornis.** (Tab. XVII. fig. 22, ♂.)

Thorace, capite, scapo antennarum pedibusque, ex parte, rufis, antennarum articulis 2°–4^m^, trochanteribus, spinis petiolique dimidio apicali albis, abdomine nigro; alis hyalinis. ♂.

Long. 6·5 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Antennæ with the scape a little longer than the second and third joints united; the third and fourth joints subequal, each about three times longer than the second joint. Face shining, with scattered punctures; a furrow runs down laterally past the outer side of the antennæ from near the ocelli to the clypeus. Front finely punctured; a depression above each antenna; vertex rugosely punctured. Thorax nearly transverse in front, opaque on the middle lobe, the latter bearing large punctures; lateral lobes shining, aciculated, a furrow down the centre. Parapsidal furrow narrow, not very

distinct. Scutellum rugosely punctured. The lower part of the mesopleuræ and sternum strongly punctured, the upper part finely punctured, the oblique depression at the end obliquely striated. Metathorax rugosely reticulated. Petiole shining, impunctate, about one and a half times longer than the metanotum. Hind coxæ finely punctured; spurs reaching nearly to the middle of the metatarsus. The legs are rather long; the coxæ are obscure white, black at the base and apex; the trochanters are white, black at the apex, the posterior pair broadly so; the hind femora, tibiæ, and tarsi are black, the femora obscure brown in the middle. The mesonotum laterally and the metanotum in the middle are obscured with black.

2. *Radial and cubital nervures entirely obsolete.* (Species 12.)

12. **Evania nitida.** (Tab. XVIII. fig. 1, ♂.)

Rufa, lævis, antennis, metathorace postice, abdomine pedibusque posticis nigris, apice petioli facieque albis; alis hyalinis, apice fere fumatis. ♂.

Long. 4–5 millim.

Hab. Panama, Bugaba (*Champion*).

Antennæ issuing from near the middle of the eyes; scape scarcely so long as the second and third joints united; the third joint about three times the length of the second and slightly shorter than the fourth joint. Face projecting in the middle, obscurely punctured; the vertex more closely and strongly punctured. Pro- and mesothorax shining, impunctate; the middle lobe raised; the parapsidal furrows wide, deep; mesopleuræ deeply obliquely excavated, very shining. Scutellum shining, impunctate, the space in front of it crenulated. Metathorax rugosely punctured; the apex with an oblique rounded slope, black; the metapleuræ hollowed, shining, obliquely striated round the edges, the centre being smooth. The thorax is almost glabrous. Petiole more than double the length of the metanotum, shining, impunctate. The four anterior legs are pale reddish-testaceous, the middle femora blackish above. The hind legs are black, except the greater part of the coxæ and the base of the trochanters; they are sparsely covered with white hairs, the tarsi densely so. The long spur on the tibiæ is more than one third of the length of the metatarsus, the latter being a little shorter than the other joints united. Tarsi longer than the tibiæ, the joints elongated, the basal pair as long as the tibiæ.

b. *Parapsidal furrows obsolete. Cubital nervure obsolete beyond the first cubital cellule.* (Species 13.)

13. **Evania trochanterata.** (Tab. XVII. fig. 23, ♀.)

Nigra, rugosa, punctata; pro- et mesothorace rubris, antennarum articulis 2°–4ᵐ, trochanteribus, spinis petiolique dimidio apicali albis; petiolo lævi; alis hyalinis. ♀.

Long. 6·5 millim.

Hab. Panama, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Antennæ with the scape nearly as long as the third and fourth joints united; the third joint longer than the fourth, and nearly three times the length of the second joint. Face densely covered with stiff silvery-white pubescence, rugosely punctured, nearly transverse. Front densely pilose, the pile not so long as that on the face but closer, keeled down the centre, rugosely punctured; the vertex is not so strongly punctured, and has the punctures more widely separated. Collar almost transverse, but projecting a little in the middle. Mesonotum shining, the middle lobe marked with large distinctly separated punctures; the lateral lobes impunctate, a wide shallow furrow down the centre; parapsidal furrows narrow, moderately deep. Scutellum punctured. Pleuræ rugosely punctured, the punctures running into reticulations; a large shining impunctate space below the fore wings, and a smaller one below the hind wings. Metathorax rugosely punctured. Petiole double the length of the metanotum, smooth, shining, impunctate. Hind coxæ punctured; spurs reaching to the middle of the metatarsus, the latter scarcely so long as the following three joints united. The four anterior legs are more or less obscure brownish in front; the anterior trochanters are almost entirely white, the posterior pair having only the basal half white.

B. *Radial and cubital nervures obsolete. Antennæ with the third joint not more than double the length of the fourth; the other joints not much shorter than the third. Parapsidal furrows obsolete. Metatarsus generally longer than all the other joints united. Body more or less red.* (Species 14–18.)

14. **Evania ocellaria.**

Evania ocellaria, Schletterer, Verh. zool.-bot. Ges. Wien, xxxvi. p. 233 (1886)[1].

Hab. Mexico, Orizaba (*Bilimek* [1]).

15. **Evania rugosa.** (Tab. XVII. fig. 25, ♀.)

Nigra, pro- et mesonotum rufis, rugosis; petiolo punctato; alis hyalinis. ♀.
Long. fere 6 millim.

Hab. Guatemala, Dueñas (*Champion*).

Antennæ with the scape scarcely so long as the following three joints united; the second joint a little longer than the fourth, and shorter than the third. Head rugosely punctured throughout, the punctures coarsest on the face, sparsely covered with glistening white hair. Thorax above coarsely rugosely punctured; the pro- and mesopleuræ shining, punctured only on the lower side. Metapleuræ reticulated, the reticulations elongated in front. Petiole one half longer than the metanotum, shining, sparsely punctured, and sparsely pilose. Hind coxæ impunctate; spurs reaching to the middle of the metatarsus, the latter longer than all the other joints united.

16. **Evania dorsalis.** (Tab. XVII. fig. 24.)

Nigra, rugoso-punctata, capite (vertice nigro), pronoto, mesothorace plagaque metanoti rubris, pedibus anticis rufis; petiolo punctato.
Long. 5 millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Scape a little longer than the following two antennal joints united; the second joint a little shorter than the fourth, the latter shorter than the third. Head coarsely rugosely punctured. Upperside of the thorax coarsely rugosely punctured; the pleuræ only punctured on the lower side; a large oblique excavation on the mesopleuræ and a narrower one on the front of the metapleuræ, both shining and impunctate; behind this excavation the metapleuræ are reticulated. Petiole opaque, scarcely one half longer than the metathorax, punctured, the punctures distinctly separated. Hind coxæ punctured behind; spurs not reaching to the middle of the metatarsus, the latter longer than all the other joints united.

17. **Evania crassa.** (Tab. XVIII. fig. 2, ♂.)

Rufa, rugosa, dimidio apicali antennarum, maculis 2 metanoti, abdomine pedibusque posticis ex parte nigris; petiolo striolato, apice testaceo; alis hyalinis.
Long. fere 3 millim.

Hab. Panama, Volcan de Chiriqui (*Champion*).

Antennæ stout, thickened towards the apex, the scape as long as the four succeeding joints united; the second joint not much shorter than the third, and longer than the fourth. Head rugosely punctured; the front and vertex not so rugose, with the punctures more widely separated. Thorax rugosely punctured, the mesopleuræ only punctured behind and there not very strongly; the apex of the metathorax vertical and slightly hollowed in the centre; the punctures very large, running into reticulations. The metapleuræ are, for the greater part, black. Petiole as long as the metathorax, shining, striolated longitudinally. The four anterior legs are reddish, the femora obscured with fuscous; the greater part of the hind coxæ and trochanters are reddish; the long hinder spur is a little more than one third of the length of the metatarsus, the latter being longer than all the other joints united; the hind coxæ are scarcely punctured.

18. **Evania guatemalensis.**

Nigra, nitida, punctata, facie, tegulis, pronoto scutelloque rufis; alis hyalinis. ♂.
Long. 3–7 millim.

Hab. Guatemala, Capetillo (*Champion*).

Antennæ stout, sparsely covered with a silvery-white pile; the basal joint as long as the following three joints united; the second joint about one fourth shorter than

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the third, the latter a little shorter than the fourth; the remaining joints very closely united. Head sparsely covered with a white pubescence; the face coarsely, transversely, rugosely punctured, and with a Λ-shaped (not very clearly separated) raised part in the centre; the cheeks more closely and much less strongly punctured; front and vertex shining, sparsely covered with shallow, moderately large punctures; the vertex raised in the centre; the eyes slightly diverging and clearly margined. Thorax above bearing separated punctures like those upon the head; the metanotum more closely punctured, shining; pleuræ punctured, the punctures running into reticulations; the sutures striated and shining; the lower part of the mesopleura shining and impunctate. Petiole shining, longitudinally striolated above. Legs stout, the hind tibiæ and tarsi densely covered with a whitish (not bristly) pile. The metatarsus is as long as the following three joints united; the spurs pale, the longer one reaching to the middle of the metatarsus. All the knees are pale; the four anterior tibiæ and tarsi are pale reddish-testaceous. The scape beneath is pale reddish; the mandibles are red, black at the tips.

E. guatemalensis is separated from the other species of this group from our region by the thorax not being rugosely punctured.

Fam. TRIGONALIDÆ.

A remarkable family, containing comparatively few species, but having a wide range over the globe. By some authors its only genus is placed among the Evaniidæ; but it does not appear to me to have a very near relationship with *Evania*.

TRIGONALYS.

Trigonalys, Westwood, Proc. Zool. Soc. 1835, p. 52.
Lycogaster, Shuckard, ~~Elements of Brit~~. Ent. p. 12~~1~~ ~~(1839)~~. 1841
Seminota, Spinola in Guérin's Mag. Zool. 1840, Ins. t. 41. p. 1.

1. **Trigonalys mexicana.**

Trigonalys mexicanus, Cresson, Trans. Am. Ent. Soc. vii., Monthly Proc. Ent. Section, p. vii (♂)[1].

Hab. MEXICO (*Sumichrast* [1]).

2. **Trigonalys læviceps.**

Trigonalys læviceps, Cresson, Trans. Am. Ent. Soc. vii., Monthly Proc. Ent. Section, p. vii (♀)[1].

Hab. MEXICO (*Sumichrast* [1]).

3. **Trigonalys ornata.**

Trigonalys ornata, F. Smith, Journ. Ent. i. p. 83[1]; Westw. Thes. Ent. Oxon. p. 123, t. 23. fig. 7[2].

Hab. MEXICO [1 2].

Fam. PELECINIDÆ.

This family contains but one genus—the well-known *Pelecinus*. This genus has been relegated to the Evaniidæ by many authors, from which, however, it differs in many respects. In my opinion it is much more nearly allied to the Proctotrupidæ, to which Haliday (Hymen. Brit., 'Oxyura,' p. 2) referred it. It may possibly be regarded as the type of a distinct group.

PELECINUS.

1. **Pelecinus polyturator.** (Tab. XVIII. figg. 13, ♀; 14, ♂.)

Ichneumon polyturator, Drury, Illustr. of Nat. Hist. ii. p. 77, t. 40. f. 4[1].

Pelecinus polyturator, de Romand, Guérin's Mag. Zool. 1840, Ins. t. 49. f. 1; Klug in Germar's Zeitschr. Ent. iii. p. 382.

Pelecinus politurator, Westw. Trans. Ent. Soc. Lond. iii. p. 249, t. 14. f. 1.

Ichneumon polycerator, Fabr. Gen. Ins. p. 245. nos. 51, 52; Spec. Ins. i. p. 430; Mant. Ins. i. p. 265; Ent. Syst. Emend. ii. p. 162; Gmelin, Syst. Nat. i. p. 2691.

Pelecinus polycerator, Fabr. Syst. Piez. i. p. 111; Latr. Gen. Crust. et Ins. iii. p. 255; Lep. de St.-Farg. & Serv. Encyl. Méth. x. p. 29; de Romand, Guérin's Mag. Zool. 1840, Ins. t. 48. ff. 1, 2; Say, Amer. Ent. i. p. 29, t. 15; Complete Writings, i. p. 29, t. 15.

Ichneumon libellula, Christ, Naturg. Class. Nomencl. Ins. p. 352, t. 36. f. 1.

Pelecinus tibiator, Perty, Del. Anim. Artic. Brasil. p. 131, t. 26. f. 8.

Pelecinus clavator (Latr.), Lep. de St.-Farg. & Serv. Encycl. Méth. x. p. 30.

Hab. NORTH AMERICA.—MEXICO, Cordova (*Höge*); BRITISH HONDURAS (*Blancaneaux*); GUATEMALA, Cerro Zunil, Zapote, Capetillo, Dueñas, Calderas, San Gerónimo, Purula, Senahu, San Juan in Vera Paz (*Champion*); NICARAGUA, Chontales (*Belt*); COSTA RICA, Cache (*Rogers*); PANAMA, Bugaba, Volcan de Chiriqui (*Champion*).—SOUTH AMERICA, Colombia to Brazil; ANTILLES, Jamaica[1].

A species of universal distribution in the warmer regions of the New World, ranging from the United States to Brazil. It shows considerable variation in sculpture. A common insect in the forest-region of Guatemala and the State of Panama, ascending from the sea-level to an elevation of about 5000 feet (*Champion*).

2. **Pelecinus thoracicus.**

Pelecinus thoracicus, Klug in Germar's Zeitschr. Ent. iii. p. 384, t. 2. fig. 5[1].

Hab. MEXICO[1].

Fam. PROCTOTRUPIDÆ.

The European species only of Proctotrupidæ (or "Oxyura" as they are sometimes called) have been at all studied, so it is not possible to offer any remarks on their distribution in the tropics.

Subfam. *SCELIONINÆ.*

Seventeen genera have been formed to contain the European species of this subfamily; four only of these have been recognized in America, namely *Alaptus*, *Cosmocoma*, *Anaphes*, and *Scelio*, but others undoubtedly exist there. Many of the species are egg-parasites.

SCELIO.

Scelio, Latreille, Hist. Nat. Ins. xiii. p. 226 (1804).

1. **Scelio erythropoda.** (Tab. XVIII. fig. 16, ♀.)

Niger, pilosus, rugoso-punctatus, vel scapo antennarum pedibusque rufis; alis flavescenti-hyalinis, nervis testaceis. ♀.
Long. $5\frac{1}{2}$–7 millim.

Hab. GUATEMALA, Cerro Zunil 4000 to 5000 feet, Volcan de Atitlan 2500 to 3500 feet (*Champion*); PANAMA, Caldera in Chiriqui 1200 feet (*Champion*).

Head and thorax roughly rugose all over; abdomen closely covered with longitudinal striations, except at the junction of the segments, this part being smooth and shining, the sides also striolated. Mesonotum without sutures. Antennæ as long as the head and thorax together; second joint a little curved, as long as, if not longer than, the third; the remaining joints are short, being broader than long, and becoming thicker towards the bluntly conical apex; the middle joints are produced a little on the lower side; the apical joints are closely united.

TRIMORUS.

Trimorus, Förster, Hymen. Stud. ii. p. 101 (1856).

Trimorus is distinguished from the other genera of Scelioninæ with broad basal segment to the abdomen (the other segments being of nearly equal size) by the postscutellum bearing spines, and by the mesonotum being divided into three areæ by the sutures of the parapsides.

In these respects the species here described may be regarded as a *Trimorus*; but, as Förster's description of the genus is so laconic, I think it quite possible it may be proved hereafter to belong to a different genus.

Trimorus is only known from Europe.

1. **Trimorus luteus.** (Tab. XVIII. fig. 20.)

Luteus, capite, antennis, abdominis basi et apice late nigris; alis fumatis, basi late flavescenti-hyalinis. ♀.
Long. $5\frac{1}{2}$ millim.

Hab. PANAMA, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Head roughly punctured all over; thorax covered with shallow large punctures, which are stronger on the scutellum; the base of the abdomen strongly striated, the striations continued to the middle of the end of the third segment, but becoming very much finer and closer; the rest of the abdomen coarsely punctured. Mandibles large, acute, projecting. Antennæ with the second joint thicker and a very little shorter than the third, the latter double the length of the fourth; the other joints are twice as broad as long, and almost double the breadth of the scape; the scape and the base of the flagellum are more or less obscure testaceous. The collar is more or less blackish close to the head and legs. Scutellum sharply raised from the scutum all round; the base rounded, as is also the top; at the apex it is more truncated, and bears a well-defined keel and has an inward slope. Metanotum large, flat, the sides straight, projecting at the outer edges into a blunt tooth and retreating from there to the centre (so that the apex is semicircular), and with a border all round. On the postscutellum are two large stout black teeth, joined at the base. Mesopleura hollow, striated. Mesonotal sutures wide, shallow, somewhat canaliculated.

The abdomen in the typical *Trimorus* is said to be rather long; but this is not the case with the present species, in which it is only a little longer than the head and thorax together.

Subfam. *DIAPRINÆ.*

The European forms only of this small subfamily have been studied to any appreciable extent, the American species being scarcely known.

PARAMESIUS.

Paramesius, Westwood, Lond. & Edinb. Phil. Mag. i. p. 129 (1832).

Paramesius will, no doubt, prove to be numerous in species when more attention has been paid to the genus. It has not hitherto been recorded from beyond Europe.

A. *Postscutellum bearing a thick curved spine; third joint of the antennæ at least three times the length of the second; vertex raised, separated by furrows from the sides.*

1. **Paramesius fasciatipennis.** (Tab. XVIII. fig. 18, ♀.)

Niger, pedibus piceo-rufis; petiolo quam segmentum 2^m^ fere longiore; alis fumatis, albo-fasciatis. ♂ ♀.
Long. 6–7 millim.

Hab. Panama, Bugaba, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ pilose; second joint about one third of the length of the third, the latter a little longer than the fourth, the fifth shorter than the preceding, the sixth distinctly longer than broad, the seventh thicker and scarcely longer than broad; the remaining joints much thicker, broader than long; the apical joint conical and thinner, if any-

thing shorter than the twelfth. Vertex raised, completely surrounded by a hollow; behind in the middle, and clearly separated from the surrounding parts, is a hollow projecting hood-like process, beneath which the prothorax is attached; eyes bordered all round. Mesonotal sutures deep, wide. In front of the scutellum is a wide transverse furrow; the foveæ at the base of the scutellum are longer than broad, narrowest at the base, where they approach each other; on either side of the scutellum is a similar but smaller fovea. Petiole not much shorter than the second segment; a deep channel in the centre, there being another channel along each side. On the head behind, on the prothorax, on the metapleura, and on the underside of the petiole are thick masses of white woolly hair, thickest on the head and prothorax; the apex of the abdomen bears some long hairs. Wings hairy, the apex ciliated; beyond the stigma, on either side, are two somewhat triangular white fasciæ; the apex is white, with a fuscous cloud at the extreme end, this cloud being sometimes united to the black central part at its middle; the basal part bears some lighter clouds. The base of the flagellum is usually, and the petiole and abdomen are sometimes, more or less piceous.

The male has the antennæ closely pilose, of nearly uniform thickness throughout, the third joint more than one third longer than the fourth, the latter curved at the base; otherwise as in the female.

2. **Paramesius maculipennis.** (Tab. XVIII. figg. 11, ♂; 12, ♀.)

Niger, pedibus piceo-rufis; petiolo quam segmentum 2^{m} dimidio breviore; alis fumatis, albo-fasciatis. ♂ ♀. Long. 6–7 millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Similar in coloration to the preceding species, but differing as follows:—The antennæ are longer and thicker, and the third joint is longer compared to the fourth; the centre of the mesonotum is raised, this raised portion being carinated towards the scutellum, and there is a wide hollow on either side of it; there is another hollow beyond and external to this one; and touching the transverse furrow in front of the scutellum is a deep fovea, twice as long as broad. The foveæ at the base of the antennæ are wider and deeper, and there is another large fovea outside them; at the side of the scutellum behind there is a large deep fovea open at the apex. The petiole is much shorter and wider, and in the middle of the central channel is a ridge which extends to near the middle.

The base and the apical joints of the antennæ are usually piceous-red, and the thorax and abdomen are more or less tinged with the same colour.

B. *Postscutellum pyramidal; second joint of the antennæ scarcely half the length of the third; vertex not separated by furrows from the sides.*

3. **Paramesius canaliculatus.** (Tab. XVIII. fig. 24, ♀.)

Niger, flagello, antennarum basi pedibusque rufo-piceis; alis fumatis, apice fere hyalinis. ♀.
Long. $4\frac{1}{2}$ millim.

Hab. Mexico (*Sallé*).

Antennæ with the second joint one half shorter than the third, the fifth one fourth shorter than the fourth, and the sixth thicker and shorter than the fifth; the seventh and eighth joints globular, as broad as long; the remaining joints (forming the club) much wider, broader than long, the last joint bluntly conical, and narrower and a very little shorter than the twelfth. Head with a few long scattered black hairs; the woolly hair on the collar moderately thick, griseous. Foveæ at the base of the scutellum large, longer than broad, finely punctured. Postscutellum pyramidal. Petiole three times as long as broad, deeply and widely channelled in the middle; the sides and lower surface covered with woolly hair. The wings are subhyaline beyond the stigma, this hyaline portion forming an elongated fascia close to the border, but clearly separated from the hyaline part at the apex; the stigma scarcely projects downwards from the costa.

C. *Postscutellum pyramidal, but not so much elevated in the centre; the second joint of the antennæ as long as the third; vertex not separated by furrows from the sides.*

4. **Paramesius chiriquensis.** (Tab. XVIII. fig. 15, ♀.)

Niger, nitidus, geniculis tarsisque piceis; alis fere fumatis, nervis fuscis. ♀.
Long. fere $4\frac{1}{2}$ millim.

Hab. Panama, Volcan de Chiriqui 8000 feet (*Champion*).

Antennæ scarcely so long as the thorax and abdomen united; sparsely clothed with hair, the basal joint more distinctly so; the latter as long as the following three joints united; the second joint nearly as long as the third, which is about one third longer than the fourth; the eighth to the twelfth joints broader than long, and gradually becoming broader outwardly; the thirteenth twice as long as the twelfth and conical at the apex. Head and thorax with scattered hairs; parapsidal furrows complete; three foveæ at the base of the scutellum; postscutellum pyramidal; metanotum irregularly and roughly reticulated. Petiole nearly three times longer than broad, with two stout keels down the centre and one on either side; the base of the first segment with three grooves, the central groove the longest. Tibiæ covered with stiff white hairs.

SPILOMICRUS.

Spilomicrus, Westwood, Lond. & Edinb. Phil. Mag. i. p. 129 (1832).

This genus contains numerous European species; it has been recorded from North America.

1. **Spilomicrus tinctipennis.** (Tab. XVIII. fig. 17, ♀.)

Niger, basi flagello antennarum, petiolo pedibusque rufo-piceis; alis fere fuscis. ♀.
Long. $1\frac{3}{4}$ millim.

Hab. Panama, Bugaba (*Champion*).

Antennæ as long as the abdomen and half of the thorax united; second joint shorter than the third, the latter longer than the fourth, the fifth as long as broad; the other joints all broader than long, and becoming gradually broader towards the apex, the penultimate joint being more than twice as broad as long; the last joint conical, longer than broad, and longer than the preceding. Pronotum covered with white woolly hair. Postscutellum with a long, stout, curved spine. Petiole margined; the space enclosed by the keels finely punctured. The posterior femora have an indistinct border on the lower side, and at the base a blunt projecting tooth.

Subfam. *DRYINÆ.*

The raptorial claws of the fore legs are a distinctive feature of this subfamily. Species of Dryinæ are known from almost all parts of the world.

GONATOPUS.

Gonatopus, Ljungh, Weber's Beitr. zur Naturk. p. 161 (1810).

The species of this genus are all apterous in both sexes, this character readily distinguishing *Gonatopus* from the allied forms.

a. *Head and mesothorax punctured.*

1. **Gonatopus testaceus.** (Tab. XVIII. figg. 22, ♂; 23, ♀.)

Testaceus, antennarum articulis 4°–6^{m} abdominisque basi nigris. ♂ ♀.
Long. 7 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

The first four joints of the flagellum are very slender, the other joints thicker but becoming more slender again towards the apex; the third joint is as long as the following two together. The vertex is distinctly margined at the top; from the carina the head slopes on either side, and is but slightly excavated either before or behind; the front is a little hollowed on each side of the central keel; the face is semi-perpendicular; the upper part of the head is finely punctured, glabrous; the lower

orbits of the eyes on the inner side are bordered with white depressed hair. Thorax covered with long fuscous hairs; prothorax obsoletely punctured; mesothorax closely punctured, striated over the coxæ, the anterior neck-like part margined at the sides, broader than long, its teeth blunt; metathorax punctured, transversely striated. Abdomen broad, tapering to a blunt point behind, the apex brownish, sparsely covered (especially on the sides of the dorsum) with long, white, glistening hairs. The coxæ are, for the greater part, black behind; the posterior pair are almost entirely black; on the underside they are covered with long white hair; the hinder pair are very finely punctured; the anterior pair are almost shorter than the trochanters. All the tarsi are black at the base, and the posterior tibiæ are black at the apex.

2. **Gonatopus palliditarsis.** (Tab. XVIII. fig. 21, ♀.)

Rufo-testaceus, thorace, antennarum articulis 5°–7^{m} abdominisque basi nigris, tarsis pallide testaceis. ♂ ♀.
Long. 7–9 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

The antennæ become thickened from the fifth joint, and have their third joint nearly as long as the fourth and fifth together. Front deeply excavated, almost shining, finely punctured, sparsely pilose; over each antenna is a large fovea, and between the foveæ the head projects, this part being finely shagreened; the lower part of the orbits of the eyes bears long, depressed, silvery-white hairs. Mandibles pale testaceous, the teeth piceous. Thorax covered with rather long scattered hairs; prothorax smooth, shining, obscurely punctured in front; mesothorax almost cylindrical in front, narrow, becoming wider towards the apex, finely punctured and transversely striated, the striations becoming coarser towards the apex; scutellum almost impunctate, shining; metathorax transversely striated. Abdomen broad in the middle, rather flat, shorter than the thorax. Anterior legs much longer than the body. Coxæ finely punctured; the anterior pair more than one fourth longer than the trochanters.

The punctuation varies in intensity on the head and thorax. Sometimes the middle of the mesothorax is quite smooth, especially above, and this is nearly always the case with the pronotum. The centre of the front is often broadly black; and the back of the abdomen is sometimes suffused with fuscous.

3. **Gonatopus albomarginatus.** (Tab. XIX. fig. 1.)

Niger, antennarum basi, ore pedibusque rufo-testaceis, coxis pro parte genibusque posterioribus nigris, abdominis segmentis albo-marginatis. ♂ ♀.
Long. 6–7 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ with the third joint slender, longer than the preceding two together; the

fourth joint a little longer than the fifth; the other joints subequal, much thicker than those preceding, scarcely becoming attenuated towards the apex. Head much excavated behind, not margined; closely and finely punctured all over, except above the mouth. The upper and outer orbits of the eyes bear a few rather long fuscous hairs, and the lower orbits on the inner side some closely pressed white ones. Thorax glabrous; pronotum emarginated in the middle in front, obscurely punctured. Basal region of the mesothorax one half longer than broad, margined behind and at the sides, depressed above in the middle, and clearly separated from the other part, obscurely punctured and pallid testaceous in colour; at its apex, on each side, is a blunt tooth; the anterior half of the mesothorax behind this part is transversely striated, the rest finely punctured and obscurely, transversely striated. Metathorax flat, transversely striated; its centre truncated, becoming hollowed towards the apex. Abdomen a little shorter than the thorax. Anterior coxæ rather longer than the trochanters.

The basal three joints of the antennæ and the apical joint also are testaceous; but in one specimen the latter is black. The legs are sometimes entirely without black; and the abdomen in some examples is testaceous, and only black on the top. *G. albo-marginatus* seems to vary considerably in colour and also in the intensity of the punctuation of the upper surface.

4. **Gonatopus orbitalis.** (Tab. XIX. fig. 3.)

Niger, antennis (apice excepto), facie, orbitis oculorum infra tarsisque rufo-testaceis. ♀.
Long. 5 millim.

Hab. Panama, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

Antennæ stout, and becoming gradually thickened towards the apex; the basal joint curved and not much thicker than the second; the third joint shorter than the following two, the fourth longer than the fifth; the other joints become gradually shorter and thicker to the penultimate, the latter being more than half the length of the preceding; the last five joints are black. The head is opaque, alutaceous, and sparsely covered with long, white hair; it is not much excavated either above or behind; there is no carina leading from the ocelli to the face. Thorax sparsely covered with rather long white hairs; prothorax smooth, shining. The narrow basal part of the mesothorax is a little longer than broad, finely rugose, margined at the sides, and without tubercles, the posterior portion is smooth and shining at the base, the remaining parts and the mesopleuræ being transversely striated. Metathorax transversely striated. Pro- and mesosternum finely punctured; the latter with a stout keel down the centre and separated from the pleura by a wide and almost impunctate furrow. Abdomen sparsely covered with long white hairs. Fore and hind coxæ finely punctured, especially at the sides; the former about the same length as the trochanters. The anterior knees and the base and apex of the trochanters are testaceous; and the anterior femora and tibiæ are more or less piceous beneath.

b. *Head and mesothorax shining, impunctate.*

5. **Gonatopus dromedarius.** (Tab. XIX. fig. 2.)

Niger, nitidus, antennarum articulis 1°, 2°, 5°, 6° testaceis, pedibus rufis, coxis nigris, tarsis anticis apiceque coxarum albis, tarsis posticis pallide testaceis. ♀.
Long. 6 millim.

Hab. Panama, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ slender, slightly thickened towards the apex; the third joint double the length of the first. Head broad, shining, impunctate, moderately depressed above; the orbits of the eyes in front broadly obscure brownish; the tips of the mandibles piceous. Thorax shining; metanotum shining, striated, the striæ widely separated. The prothorax above rises into a broad hump behind; the posterior part of the mesothorax and the anterior portion of the metathorax also form a hump. The anterior neck-like part of the mesothorax is longer than the posterior part, the posterior half being also white; the raised margin separating the two is sharp and distinct; behind this the mesothorax, laterally, is striolated.

6. **Gonatopus apicalis.** (Tab. XIX. fig. 4.)

Niger, coxis subtus trochanteribusque albidis, ore, femoribus posterioribus subtus, genibus, tibiis posterioribus tarsisque pallide testaceis; antennis testaceis, articulis 8°–10^{m} nigris. ♀.
Long. 6·5 millim.

Hab. Panama, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

Antennæ with the third joint not much longer than the fourth and fifth joints together, the fourth a little longer than the fifth; from the latter the joints are thicker than the third and fourth; the basal joint of the scape is black above, yellowish-testaceous for the rest; the basal joints of the flagellum are obscure fuscous above. Head with the front flat, deeply excavated, margined, convex and almost perpendicular behind; smooth, shining, impunctate, bearing a few rather long hairs behind; the face, the inner orbits of the eyes to a little above the middle, and the lower part of the front in the centre are obscure yellowish or whitish-testaceous. Thorax smooth, shining, except the metathorax, the latter being transversely striated and the striations wide apart; the narrow front region of the mesothorax is more than double as long as broad, margined at the sides, and bears two obtuse tubercles towards the middle; the pronotum and the mesothorax bear a few rather long white hairs, and the metanotum is closely covered with similar hairs. The bases of the abdominal segments are faintly punctured, opaque. Anterior coxæ a little longer than the trochanters.

DRYINUS.

Dryinus, Latreille, Hist. Nat. Ins. xiii. p. 228 (1804) [sec. Förster, Hymen. Stud. ii. p. 90 (1856)].

This genus is apparently more numerously represented in tropical than in temperate regions.

The group of D. MACULICORNIS.

Vertex depressed; occiput concave; ocelli in a triangle; eyes converging in front; third joint of the antennæ double the length of the first; third joint of the anterior tarsi double the length of the fourth; prothorax above bluntly keeled, longer than the mesothorax; parapsidal furrows obsolete; body rather long, narrow.

1. **Dryinus maculicornis.** (Tab. XIX. fig. 5.)

Niger, antennis testaceis cum articulis 5°–7^m^ nigris, clypeo mandibulisque albis, tarsis abdominisque apice testaceis. ♂ ♀.
Long. 6 millim.

Hab. PANAMA, Bugaba 800 to 1500 feet, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Antennæ with the apical five joints of the flagellum thicker than the basal joints; joints 7–9 brownish beneath; the basal joint white on the lower side, fuscous above. Head closely punctured, covered (especially along the eyes) with long white hair; the clypeus in the middle and the tips of the mandibles piceous; palpi fuscous. Thorax covered with rather long white hair; the pro- and mesothorax closely and somewhat strongly punctured, the former laterally, on the lower side, finely, longitudinally aciculated; metanotum coarsely, longitudinally striolated. Abdomen scarcely so long as the thorax; the basal three segments finely aciculate, the apical segment almost impunctate. The legs are sparsely covered with white hair; more or less black above, the front part white at the apex, the femora and tibiæ more or less brownish beneath; the coxæ and anterior trochanters are obscure brownish-testaceous. The wings are milky-white at the extreme base between the transverse basal nervure and the base of the stigma (which is white), and fusco-hyaline in front of the stigma.

2. **Dryinus alticola.** (Tab. XIX. fig. 6.)

Niger, antennarum articulo 5° tarsisque testaceis; alis fuscis, fascia medio apiceque hyalinis. ♀.
Long. fere 6 millim.

Hab. PANAMA, Volcan de Chiriqui 4000 to 6000 feet (*Champion*).

Head closely, longitudinally, and rather strongly punctured; vertex scarcely depressed; a narrow keel runs down from the ocelli; palpi whitish. Prothorax finely longitudinally striated; the posterior part raised into a rather long hump, which is rather sharp in the centre. Mesothorax closely and rather strongly punctured;

metanotum coarsely longitudinally striolated, the striæ almost running into reticulations; metapleuræ punctured, the punctures running into striations. Abdomen smooth, shining, shorter than the thorax. Wings as in *D. maculicornis*.

Apart from the difference in the coloration of the legs and antennæ, *D. alticola* is separated from *D. maculicornis* by the vertex being scarcely depressed, and the prothorax above distinctly separated into a lower anterior and a raised posterior part; and also by the longer metathorax and the stouter antennæ.

The group of D. RUFICEPS.

Vertex slightly depressed; occiput almost transverse; anterior ocellus considerably in front of the posterior; eyes converging in front; third joint of the antennæ more than double the length of the first, the latter a little longer than the fourth; third joint of the anterior tarsi longer than the fourth; prothorax bluntly keeled in the centre above; parapsidal furrows obsolete.

3. **Dryinus ruficeps.** (Tab. XIX. fig. 7.)

Rufus, medio antennarum, meso-, metathorace coxisque posticis nigris.
Long. 7 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ inserted in the lower third of the head; the joints becoming slightly thickened from the fifth; the third joint as long as the following three joints together; the fourth joint a little longer than the fifth, the latter being longer than the sixth; the apical joint one half longer than the preceding. Head longitudinally striated; behind it is but slightly convex; front excavated; eyes converging anteriorly; the orbits of the eyes with short pale hair; the two posterior ocelli situated at the extreme rear, the front ocellus larger and placed at a considerable distance from them. Prothorax half the length of the mesothorax, bluntly and roundly ridged in the back and with a fine keel in the centre; the back transversely striated, the sides obscurely rugose; its apical margin is whitish-yellow. Mesothorax coarsely rugose; in front is a smooth, impunctate part, narrower and flatter than the rest and separated from it by a ridge; scutellum raised, separated from the scutum by a wide, nearly straight, groove; pleuræ densely covered with long white pubescence. Metanotum separated from the mesonotum by a slightly curved furrow; behind this furrow is a more distinctly curved and deeper one; the metathorax is rugosely reticulated, and behind it is closely covered with white pubescence which hides the reticulations. Wings: there is a rather long mark at the base of the costal cellule, a narrower one at the end of the discoidal cellule (stretching nearly across the wing), and a broad one at the stigma.

An example probably referable to the same species has the tibiæ inclined to white in front and lined with black behind, and the abdomen with three broad black bands.

The group of D. MELANOCEPHALUS.

Vertex convex, not depressed; occiput transverse; ocelli in a triangle; eyes parallel; third joint of the antennæ about one third longer than the first; head well-developed behind, narrowed behind the eyes; prothorax shorter than the mesothorax; parapsidal furrows almost complete.

4. **Dryinus melanocephalus.** (Tab. XIX. figg. 15, 26, *var.*)

Niger, thorace, ore, antennarum articulis 1°–5ᵐ, femoribus tibiisque anticis rufis, mesosterno basique femorum anticorum nigris; alis hyalinis, fusco-bifasciatis.
Long. 4–5 millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Antennæ stout, thickened towards the apex, sparsely pilose. Head covered with rather long white or fuscous pubescence; coarsely rugose, the rugæ running into reticulations. Eyes margined. Thorax covered with long white hair, sparsely punctured, the metanotum at the sides transversely striolated; prothorax laterally deeply excavated; mesonotum almost impunctate; the parapsidal furrows deep, wide, not reaching to the scutellum. Abdomen shining, impunctate. Legs covered with rather long white hairs; anterior tibiæ considerably thickened.

The amount of red on the legs varies; the tegulæ are black, and usually the mesonotum near them is marked with black; the tarsi are more or less marked with testaceous; and the base of the abdomen beneath is sometimes piceous-red, and the apex is sometimes testaceous.

5. **Dryinus nigricans.** (Tab. XIX. fig. 8.)

Niger, coxis trochanteribusque anterioribus albis, ore, mandibulis, apice tarsorum, antennarum articulis 5° et 6° abdominisque apice testaceis; alis fumatis, basi et fascia medio hyalinis. ♀.
Long. 6 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Antennæ pilose, thickened towards the apex; the basal joint whitish beneath, and scarcely twice the length of the second. Head and thorax opaque, finely punctured, densely covered with white hair; parapsidal furrows distinct, but not very broad or deep; the furrow in front of the scutellum wide and deep; metanotum finely punctured, obscurely reticulated towards the base. Abdomen smooth, shining, impunctate, and as long as the thorax. The femora bear some rather long scattered hair, and the tibiæ and tarsi are covered with a closer and thicker pile; the anterior femora are considerably thickened, and whitish beneath. Wings: the radial nervure is angled in the middle, and extends to the apex; the transverse humeral nervure is received shortly before the transverse basal nervure; the stigma is black, white at the base; the extreme base, a fascia in front of the transverse basal nervure, and a stripe in front of the stigma are clear white; the apex is fainter than the middle portion.

The group of D. CHIRIQUENSIS.

Head as in D. melanocephalus; *prothorax scarcely so long as the mesothorax, quadrate (but, if anything, longer than broad), flat above, the sides straight; parapsidal furrows obsolete; metathorax with a rounded gradual slope.*

Chiefly distinguished from the *D. melanocephalus* section by the obsolete parapsidal furrows, the longer and straighter prothorax, and the radial nervure being almost obsolete from a little beyond the apex of the stigma. The antennæ are missing from the example of the single species I include in this group.

6. **Dryinus chiriquensis.** (Tab. XIX. fig. 9.)

Niger, mandibulis, basi et apice abdominis pedibusque rufo-testaceis, geniculis, coxis anterioribus tarsisque pallidis, apice femorum posticorum nigris. ♂.
Long. 5 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Head wide, longitudinally striolate-reticulate; sparsely covered with white hair. Prothorax somewhat strongly punctured and covered with long white hair; mesothorax sparsely pilose, almost impunctate; metathorax punctured, with six small upper and three large lower areæ. Abdomen a little shorter than the thorax, shining, impunctate. Wings in greater part hyaline; there is a narrow smoky line on the transverse basal and humeral nervures, and a broad stripe at the stigma (which is white except at the apex), and the apex is also slightly clouded; the radial nervure does not extend much beyond the stigma.

The group of D. ALBITARSIS.

Vertex not depressed; occiput short, convex; eyes parallel; third joint of the antennæ shorter than the first and about one fourth longer than the second; prothorax shorter than the mesothorax.

7. **Dryinus albitarsis.** (Tab. XIX. fig. 10.)

Niger, ore, antennis, coxis, trochanteribus, femoribus tibiisque anticis rufo-testaceis, tarsis pallidis; alis hyalinis, fusco-bifasciatis, stigmate nigro, cum basi alba. ♂.
Long. fere 3 millim.

Hab. GUATEMALA, Panajachel 5000 feet (*Champion*).

Antennæ stout, longer than the head and thorax united; almost glabrous. Head finely rugosely punctured, sparsely clothed with short white hairs; eyes margined. Prothorax rugosely punctured (more coarsely so than the head), the pronotum behind not so strongly, and more shining than the rest; mesonotum aciculated; scutellum shining, impunctate; metathorax longitudinally rugosely punctured, with a curved

transverse keel where it bends downwards, and above this keel some longitudinal ones. Abdomen shining, the base laterally obscure brownish. The hind coxæ are, for the greater part, black above; the middle femora are brownish beneath; the tips of the tarsi are blackish. The wings are whitish-hyaline; the small fascia at the transverse basal nervure is irregular, that at the stigma is broad, extends right across, and is of equal breadth; the radial nervure does not extend much beyond the stigma.

Subfam. *BETHYLINÆ*.

This subfamily approaches very closely to the "aculeate" section of the Hymenoptera, and has been by some authors (*e. g.* Haliday) placed among them. The trochanters have only one joint.

SCLERODERMA.

Sclerodermus, Latreille, Gen. Crust. et Ins. iv. p. 119 (1809).
Scleroderma (Klug), Westwood, Trans. Ent. Soc. Lond. ii. p. 164 (1839), and 1881, p. 117; S. Saunders, Trans. Ent. Soc. Lond. 1881, p. 109.
Sclerochroa, Förster, Hymen. Stud. ii. p. 95 (1856).

The name *Sclerochroa* was substituted by Förster on account of *Scleroderma* being preoccupied for a genus of fungi. I do not, however, accept the rule that the same name cannot be used in Botany and Zoology.

Scleroderma has a wide range over the globe.

1. Scleroderma soror.

Scleroderma soror, Westw. Trans. Ent. Soc. Lond. 1881, p. 123, t. 5. fig. 5 [1].

Hab. Mexico (*Coffin* [1]).

APENESIA.

Apenesia, Westwood, Thes. Ent. Oxon. p. 170 (1874); Trans. Ent. Soc. Lond. 1881, p. 130.

Apenesia appears to differ chiefly from *Scleroderma* in having the tibiæ and tarsi thickly spinose, these parts in *Scleroderma* being bare or but slightly pilose.

Four species have been described: two from the Malay region, one from the Amazons, and another from Nicaragua.

1. Apenesia chontalica.

Apenesia chontalica, Westw. Trans. Ent. Soc. Lond. 1881, p. 131, t. 7. ff. 3, 3 *a–d* [1].

Hab. Nicaragua, Chontales [1] (*Belt*).

2. **Apenesia flavipes.** (Tab. XIX. fig. 11, ♀.)

Fulva, nitida, antennis pedibusque flavis. ♀.
Long. 6 millim.

Hab. PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

Differs from *A. chontalica* in being $3\frac{1}{2}$ millim. longer; in having the abdomen as long as the head and thorax united (in *A. chontalica* it is not much longer than the thorax); in the base of the mesonotum being triangular and not curved laterally, the sides being quite straight; and in the metathorax being narrowed in the middle and not at the base. The tips of the mandibles are black; the basal two joints of the anterior tarsi are sharply produced at the apex.

EPYRIS.

Epyris, Westwood, Lond. & Edinb. Phil. Mag. i. p. 129 (1832).

Epyris is numerously represented in the Neotropical region, and contains some (for the group) large and striking species. It is but poorly represented in the Old World.

A. *Prothorax short, the pronotum raised abruptly above the prosternum and broader than long; the lower discoidal cellule distinct; head rugosely punctured.*

1. **Epyris rugifrons.** (Tab. XIX. fig. 12.)

Niger, pilosus, capite prothoraceque rugosis, metanoto reticulato; alis fuscis. ♂.
Long. 10 millim.

Hab. GUATEMALA, Las Mercedes 3000 feet, Cerro Zunil 4000 to 5000 feet (*Champion*).

Antennæ as long as the thorax and abdomen united, densely covered with long white hair; the basal joint as long as the third. Head strongly rugosely punctured, covered with long fuscous hair; a small depressed impunctate space in front of the ocelli; mandibles punctured. Prothorax rugosely punctured, covered with long fuscous hair; a broad transverse furrow at the apex of the pronotum. Mesonotum sparsely punctured laterally, and bearing there some rather long fuscous hair; parapsidal furrows complete. Scutellum sparingly punctured, pilose. Metanotum irregularly keeled and reticulated; the top narrowed towards the apex (giving it a somewhat triangular shape); the apex semiperpendicular, irregularly punctured or blistered. Abdomen elongate oval in shape, shining, impunctate, the apex red and pilose. Legs densely covered with a greyish pile, which is very close and stiff on the tibiæ and tarsi. Claws bifid.

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2. **Epyris coxalis.**

Niger, capite punctato, scapo antennarum, coxis, trochanteribus femorumque basi albis; alis fuscis, apice violaceis. ♂.
Long. fere 9 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ thick, densely pilose, the first joint a little longer than the third. Head shining, covered with shallow widely separated punctures; antennal depressions deep and wide; mandibles almost impunctate. Thorax sparsely punctured, the punctures very shallow. Parapsidal furrows not reaching to the scutellum; the transverse furrow in front of the latter wide and deep. Scutellum almost without punctures. Metanotum irregularly punctured and blistered; a stout keel runs down the centre and a wide and deep furrow down either side; the apex with a moderate slope; the sides transversely striated. Abdomen shining, the sides and ventral surface inclining to piceous. Femora and tibiæ sparsely, the tarsi densely, pilose.

3. **Epyris erythropoda.** (Tab. XIX. fig. 14.)

Niger, capite rugoso, antennis, ore, mandibulis, pedibus abdominisque apice rufis; alis hyalinis, cum fascia medio fumata; tegulis testaceis; coxis nigris. ♂.
Long. 10 millim.

Hab. PANAMA, Bugaba, Volcan de Chiriqui 3000 to 4000 feet (*Champion*).

Antennæ shorter than the thorax; the scape bare, shining, curved, longer than the third joint; the flagellum densely pilose, tapering perceptibly towards the apex; the third joint somewhat longer than the fourth. Head not much broader than the mesothorax, rather long, sparsely covered with long fuscous hairs, rugosely punctured; a shining furrow in the centre between the eyes; antennal tubercles large, reddish, a sharp projecting keel between them; mandibles with some large separated punctures, shining, the teeth black; palpi rather long, pilose, testaceous. Pro- and mesothorax bearing large punctures; the sternum and pleuræ more strongly punctured than the upper sides, except a shining impunctate space on the hinder part of the mesopleura; scutellum shining, finely but not closely punctured. The base of the metanotum bears some stout longitudinal keels; the rest of the flat posterior part is strongly transversely striolated, the two hinder parts being separated by a stout curved keel; the centre is depressed; the semiperpendicular apex is closely and strongly transversely punctured, except at the extreme top, the latter being excavated and the centre hollowed; the deep oblique depression at the base of the metapleuræ is shining and striated. Abdomen shining; the apex blunt, depressed in the centre, and very pilose, the hairs being fulvous. Legs densely pilose. Wings: radial nervure curved at the base; the recurrent nervure very faint, almost obsolete.

B. *Prothorax elongated, longer than broad, the pronotum not raised abruptly above the prosternum; the lower discoidal cellule usually obliterated; head smooth or but slightly punctured.*

4. **Epyris viridis.** (Tab. XIX. fig. 16.)

Viridis, flagello antennarum abdomineque nigris, trochanteribus, tibiis tarsisque testaceis; alis fumatis, apice fusco-violaceis, stigmate nigro. ♀.

Long. 7 millim.

Hab. Guatemala, San Juan in Vera Paz (*Champion*).

Antennæ stout; the first joint as long as the following three joints united; the second joint a little longer than the third. Head shining, finely punctured; eyes large, not reaching to the mandibles but near to the front ocellus, being situated more to the rear than to the front. Pronotum finely aciculated, and bearing some scattered punctures, the pleuræ and sternum impunctate. Mesonotum finely aciculated, without punctures; the parapsidal furrows complete, slightly converging towards the scutellum, narrow; a deep elongate fovea on the mesopleuræ. Metanotum with five distinct keels down the centre and another down the side, a keel round the top of the apex and another down the centre of the latter; between the central keels it is transversely but rather irregularly striolated; the sides and apex are finely transversely, the pleuræ longitudinally, striolated. The apex of the abdomen is acutely pointed and brownish; the segments at their point of junction are also of this colour.

As with most metallic-green species, the green runs into blue and coppery shades.

5. **Epyris nitidiceps.** (Tab. XIX. fig. 17.)

Niger, nitidus, capite fere punctato, antennis, mandibulis, pedibus abdominisque apice rufis; alis fumatis, stigmate et nervis pallide testaceis. ♂ ♀.

Long. ♀, 9 millim.; ♂, fere 6 millim.

Hab. Panama, Volcan de Chiriqui 2500 to 4000 feet (*Champion*).

Antennæ a little longer than the thorax; the scape bare; the flagellum shortly pilose; basal joint thickened, curved on the lower side, and as long as the following three joints united; the second and third joints subequal and a little shorter than the fourth. Head shining, bearing fine scattered punctures. Mandibles finely punctured, sparsely covered with glistening white hairs; apical tooth blackish, acute; opposite to the latter are two short blunt teeth. Pro- and mesothorax shining, sparsely and very finely punctured; scutellum impunctate. Metanotum with five keels in the centre, the central keels straight, the lateral ones more curved; the keeled central portion is transversely striated; the apex is semiperpendicular; the sides are smooth, the central part hollowed and transversely striated; the non-striated parts of the metathorax are indistinctly aciculated. Abdomen shining. Legs (especially the femora) stout; the tibiæ and tarsi covered with a stiff bristle-like pile; tips of the tarsal joints blackish.

The insect I treat as the male of the same species is similar to the female in coloration and sculpture. The flagellum is sparsely pilose, and the basal joint of the antennæ is (if anything) shorter than the third, the latter being longer than the fourth. The femora (particularly the hinder pair) incline to fuscous.

6. **Epyris testaceipes.** (Tab. XIX. fig. 18.)

Niger, sparse punctato, antennis basi late, tegulis, pedibus abdominisque apice testaceis; alis fere hyalinis, apice fumatis. ♂ abdomine brunneo-testaceis.
Long. 6 millim.

Hab. Panama, Bugaba, Volcan de Chiriqui (*Champion*).

Antennæ a little longer than the thorax; the first joint curved, longer than the second and third joints united; the third joint longer than the fourth, and fully three times the length of the second; joints 3–13 densely pilose. Head almost alutaceous, covered with shallow scattered punctures; behind and laterally bearing some rather long fuscous hairs; eyes large, reaching to the base of the mandibles and behind to the front ocellus; mandibles finely punctured, reddish, sparsely covered with white hairs, the teeth blackish. Pro- and mesothorax alutaceous, sparsely punctured, clothed with scattered fuscous hairs. Prothorax above somewhat shorter than the mesothorax; dilated at the apex. Parapsidal furrows complete. There are no foveæ at the base of the scutellum; the latter is more sparsely punctured than the mesonotum. Metanotum at the base and down the centre (except at the apex) irregularly reticulated and with a keel down the middle; the sides and apex (which has a semiperpendicular slope) finely rugose. Abdomen broader than the thorax; the sides covered with pale hair. Wings: radial nervure broadly curved; second discoidal cellule open at the apex.

Not unlike the male of *E. nitidiceps*; but that differs from the same sex of *E. testaceipes* in having foveæ at the base of the scutellum, in the parapsidal furrows being deeper, wider, and not reaching to the base of the mesonotum, in the eyes being much smaller and not reaching to the ocelli, in the legs being reddish (not testaceous), in the apex of the metanotum not being rugose, and in the antennæ being longer.

7. **Epyris multicarinatus.** (Tab. XIX. fig. 13.)

Niger, basi et apice femorum, apice coxarum, trochanteribus, tibiis tarsisque anticis, ore mandibulisque rufis; capite fere punctato; metanoto striolato; alis fumatis.
Long. 6 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).

First joint of the antennæ longer than the second, third, and fourth joints united; the latter a little longer than the second and blackish at the apex (the other joints absent). Head and thorax shining, almost impunctate; eyes large, reaching nearly to the mandibles, but not to the ocelli; the latter are placed quite close to the

occiput; mandibles finely punctured. Prothorax as long as the mesothorax, dilated behind. Parapsidal furrows narrow, shallow, complete. Scutellar foveæ large, deep. Metanotum with seven stout keels down the centre; the sides shining, impunctate; the apex almost perpendicular. Abdomen acute at the apex, shining; the fourth and following segments testaceous.

8. **Epyris bugabensis.** (Tab. XIX. fig. 19.)

Niger, basi antennarum rufa, tegulis pedibusque pallide testaceis, coxis fere albis; alis hyalinis, apice fumatis, nervis stigmateque fusco-testaceis.
Long. 5 millim.

Hab. Panama, Bugaba (*Champion*).

Antennæ as long as the head and thorax united; the flagellum somewhat densely covered with long hairs; the first joint scarcely longer than the second and third joints united; the latter longer than the fourth and four times the length of the second. Head shining, sparsely punctured; eyes scarcely reaching to the base of the mandibles nor to the ocelli; mandibles finely punctured. Pro- and mesothorax shining, impunctate, the former shorter than the latter. Paraspidal furrows moderately wide, not reaching to the scutellum; the latter is without distinct foveæ and impunctate. Metathorax longer than the mesothorax; the metanotum is transversely striolated, and with two stout keels down the centre; the apex is strongly aciculated. Apex of the abdomen truncated, pilose. The femora (especially the anterior pair) are of a redder hue than the tibiæ; the hinder pair are fuscous above and beneath.

9. **Epyris guatemalensis.** (Tab. XIX. fig. 20.)

Niger, sparse punctato, flagello antennarum testaceo, tibiis tarsisque piceis; alis fere hyalinis, nervis stigmateque testaceis. ♀.
Long. 4 millim.

Hab. Guatemala, near the city (*Champion*).

Antennæ as long as the thorax; the first joint strongly curved, as long as the following two joints united; the second and third joints subequal. Head flat, narrower than the thorax, obscurely alutaceous; eyes oval, a little longer than the basal joint of the antennæ, situated close to the mandibles and before the middle. Pro- and mesonotum shining, the former longer than the latter. Parapsidal furrows reaching to the scutellum, but not to the base of the mesonotum. Scutellar foveæ shallow, round. Metanotum finely longitudinally rugose, the central part more strongly so than the lateral, the more rugose central part narrowed towards the apex; the apex semiperpendicular, finely rugose. Abdomen shorter than the thorax, shining, the apex obscure piceous.

PARASIEROLA.

Parasierola, Cameron, Trans. Ent. Soc. Lond. 1883, p. 197.

This genus agrees with *Isobrachium* in not having parapsidal furrows; but differs in having a complete upper discoidal cellule, the lower one being entirely absent. There is a distinct prostigma, in which point it differs from *Epyris*. Its nearest allies are *Sierola* and *Goniozus*; the former is readily known from *Parasierola* by the complete radial cellule, the latter by the incomplete upper discoidal cellule.

So far as at present known, the genus is confined to America.

1. **Parasierola lata.** (Tab. XIX. fig. 21.)

Nigra, nitida, capite sparse punctato, ore, trophi, tegulis, antennis pedibusque rufo-testaceis; alis fuscis, basi fumatis, nervis fusco-testaceis, stigmate nigro. ♀.
Long. 5 millim.

Hab. PANAMA, Bugaba (*Champion*).

Antennæ scarcely so long as the thorax; the first joint enlarged, a little shorter than joints 2–4 united; the third joint double the length of the second and somewhat longer than the fourth; the intermediate joints are broader than long; the thirteenth is one half longer than the preceding. Head large, scarcely so wide as the thorax, almost shining, covered with large scattered punctures; transverse behind; a narrow keel runs down from the centre to the mouth; eyes oblong, situated in the middle. Thorax shining, impunctate, except the metanotum at the sides, the latter parts being shagreened; a deep, wide, transverse furrow at the base of the scutellum. Abdomen as long as the thorax, becoming gradually narrowed to the apex; the segments unequal. Wings: the upper discoidal cellule is longer than broad; the lower nervure straight; the upper nervure curved; the basal nervure is the larger.

2. **Parasierola opaca.** (Tab. XIX. fig. 23.)

Nigra, opaca, antennis, mandibulis pedibusque rufo-testaceis, femoribus posticis nigro-lineatis; alis hyalinis, apice fere fumatis, nervis pallidis, stigmate fusco. ♀.
Long. 4 millim.

Hab. GUATEMALA, Mirandilla 1700 feet (*Champion*).

First joint of the antennæ as long as the second and third joints united; the second, third, and fourth joints subequal. Head slightly broader than the mesothorax, opaque, alutaceous, with scattered punctures; clypeus carinate; eyes oblong. Prothorax broader than long, if anything shorter than the mesothorax, alutaceous, almost shining. Scutellum more shining than the mesonotum; its transverse furrow shallow, indistinct. Metanotum opaque, shagreened; the centre raised into an elongated triangle; the apex shining, semiperpendicular, not separated from the flat basal part. Abdomen longer

and not much narrower than the thorax. The base of the hind coxæ is black; the hind femora are broadly lined above and beneath with black. Wings: the discoidal cellule is rounded at the apex, where it is double the width of the base; the lower side is longer than the upper.

3. **Parasierola palliditarsis.** (Tab. XIX. fig. 22.)

Nigra, antennis articulis 1°–9^m^ rufo-testaceis, apice coxarum, trochanteribus, geniculis, tibiis tarsisque albo-testaceis, tegulis fuscis; alis fumato-hyalinis, nervis testaceis, stigmate fusco. ♀.
Long. 4 millim.

Hab. GUATEMALA, Mirandilla 1700 feet (*Champion*).

Head alutaceous, semiopaque; the clypeus carinate; eyes large, oblong, situated nearer the front than behind; occiput slightly convex. First joint of the antennæ longer than the following two joints united; the third joint a little longer and thinner than the second and double the length of the fourth. Mandibles piceous. Prothorax longer than broad, longer than the mesothorax, alutaceous; mesonotum more shining, shagreened; scutellum shining, impunctate or nearly so, the transverse furrow at its base shallow; metanotum finely rugose, the centre shining and impunctate. Abdomen as long as and broader than the thorax, becoming narrower from the second segment; the segments at their points of junction are testaceous. Wings: the upper discoidal cellule is truncated at the base and apex, of nearly equal length above and beneath; the upper and lower nervures but slightly curved.

MESITIUS.

Mesitius, Spinola, Mem. Accad. Torino, ser. 2, xiii. p. 72 (1853).
Isobrachium, Förster, Hymen. Stud. ii. p. 96 (1856); Marshall, Ent. Monthly Mag. x. p. 222 (1874).

Westwood (Trans. Ent. Soc. Lond. 1881, p. 125) refers *Heterocœlia*, Dahlbom (Hym. Europ. ii., Chrysididæ, p. 21), to *Mesitius*; but as *Heterocœlia* (supposing that it agrees with it in other respects) has complete parapsidal furrows, I am rather doubtful if it can be regarded as synonymous. The wings are very much as in *Epyris*, but the hind pair are less developed or much more indistinct.

The genus is European, but has not, I think, been recorded previously from any part of America.

1. **Mesitius longicollis.** (Tab. XIX. fig. 24.)

Niger, opacus, metanoto striolato, antennis, trochanteribus, femoribus ex parte, tibiis tarsisque rufo-testaceis; alis hyalinis, nervis pallide testaceis. ♀.
Long. fere 5 millim.

Hab. MEXICO (*Sallé*).

Antennæ scarcely so long as the thorax; the first joint curved, nearly as long as the

following three joints united; the second and third joints subequal; the other joints nearly equal in length. Head and thorax opaque, rather densely pilose, finely punctured, alutaceous; the metanotum transversely striated, and with five keels down the centre; the metapleuræ finely rugose. Head elongated, as broad as the thorax; the occiput margined, scarcely transverse; eyes small, oval, situated in the middle. Prothorax longer than the mesothorax, becoming considerably broader towards the apex. Scutellum with some minute shallow punctures, narrowed towards the apex; the depression at its base wide and deep. Metathorax longer than the prothorax; the apex margined at the top, and with a slight slope. Abdomen shorter than the thorax, shining, impunctate, pilose towards the apex; the segments brownish at their point of junction. The mandibles are piceous-red; the tegulæ pale testaceous. The anterior and posterior femora are more or less blackish, the intermediate femora marked with black behind.

CALYOZA.

Calyoza, Westwood, Trans. Ent. Soc. Lond. ii. p. 56, t. 7. figg. 11 *a–c* (1837); Thes. Ent. Oxon. p. 157 (1874).

I am exceedingly doubtful if the species described below can be referred to *Calyoza* (an African genus); but having only one sex I do not think it is advisable to form a new genus for its reception.

1. **Calyoza (?) westwoodi.** (Tab. XIX. fig. 25, ♂.)

Capite, pro- et mesothorace nigro-cæruleis, metathorace abdomineque nigris, antennis fuscis, tibiis tarsisque testaceis; alis fere hyalinis, nervis pallide testaceis. ♂.

Long. fere 4 millim.

Hab. Panama, Bugaba (*Champion*).

Antennæ apparently 13-jointed; the basal joint more than double the length of the second; the third joint not half the length of the second; the fourth joint nearly as long as the first, produced into a sharp point at the apex; the fifth joint produced still more, but not forming a ramus; the succeeding joints each with a rather long ramus, the rami gradually becoming shorter towards the apex. Mandibles large, minutely toothed, the apical tooth not much larger than the others. Front between the antennæ acutely carinate; eyes large, indistinctly margined, situated in the middle; ocelli in a triangle. Prothorax large, transverse, quadrate, wider than long; a distinct keel in front and along the edge of the pronotum and above the sternum. Parapsidal furrows complete, sinuated. There is a large fovea on either side of the base of the scutellum, the two foveæ being united by a shallow furrow. Wings with the median and submedian cellules complete; the radial cellule open at the fore margin; the other cellules obsolete; there is an indistinct prostigma.

Head, pro- and mesothorax, with the scutellum, closely and finely punctured, shining. Metanotum very shining, finely transversely striated, and with three longitudinal keels in the middle; the central keel straight, the lateral ones curved inwardly; there are two transverse keels across them near the centre; the apex is almost perpendicular, keeled at the top, and with a keel down the middle. Abdomen shining, the base hollowed in the middle. The base of the antennæ and the apical six joints are obscure testaceous; the other joints fuscous-black. The coxæ and the greater part of the femora are black; the four hinder tibiæ are in great part fuscous-black. The front legs are stout, the femora especially; the middle legs are more slender than the posterior. The anterior spurs are long, curved, and slender.

Fam. CHRYSIDIDÆ.

Comparatively few species of this elegant family are known from the Neotropical region. The North-American Chrysididæ have been monographed by Aaron (Trans. Am. Ent. Soc. xii. pp. 209–248); this author divides the family into four subfamilies, all of which are represented in our fauna.

Subfam. *CLEPTINÆ*.

Cleptes is the only genus included hitherto in this subfamily; but the characters given for the group by Aaron will have to be altered if *Amisega* is to be included in it.

AMISEGA.

Antennæ 13-jointed, inserted immediately over the mouth. Eyes large, parallel, reaching near to the base of the mandibles, and almost to the back of the head. Prothorax quadrate, broader than long, slightly narrowed in front and shorter than the mesothorax. Parapsidal furrows complete. Postscutellum simple, not projecting. Metathorax and median segment with a gradual slope to the apex, and without teeth or projections of any kind; a margined furrow runs down the centre and on either side of the metanotum. Abdomen with four segments; the basal two segments large and subequal, the apical segment small. Marginal cellule elongated, complete.

This genus agrees with *Cleptes* in having the face convex, without an antennal groove, and in the form of the abdomen; but it differs in having the prothorax broader than long and not much narrowed in front, as well as being shorter than the mesothorax, and in having the metathorax rounded and not angled laterally.

I include in *Amisega* a single species from the State of Panama.

1. **Amisega cuprifrons.** (Tab. XX. figg. 2, 2 *a*.)

Viridis, antennis, abdomine pedibusque nigro-cæruleis, capite cupreo; capite, pro- mesothoraceque punctatis; alis fumatis.

Long. 9 millim.

Hab. Panama, Bugaba (*Champion*).

Head strongly punctured, sparsely covered with long black hairs. Pronotum more

strongly and coarsely punctured; the prosternum shining, obscurely punctured. Mesonotum not so strongly punctured as the pronotum, the centre more finely than the sides; mesopleuræ and sternum coarsely punctured. Metanotum almost impunctate, except at the sides; median segment with scattered, shallow, indistinct punctures; metapleuræ excavated, impunctate. Abdomen glabrous above; the ventral surface (especially at the apex) bearing long black hair and finely punctured; the upper surface obsoletely punctured. Legs stout, covered with pale hair, which is longest on the coxæ; the latter are punctured. The pro- and mesothorax have coppery tints; the metathorax has a decided bluish tinge.

Subfam. *ELAMPINÆ.*

Seven genera are recorded by Aaron from North America as belonging to this subfamily; but three only are known to me from our region.

NOTOZUS.

Notozus, Förster, Verh. Ver. pr. Rheinl. x. p. 331 (1853); Aaron, Trans. Am. Ent. Soc. xii. p. 217 (1885).

Eight North-American species of this genus are known.

1. **Notozus nitidus.** (Tab. XX. figg. 3, 3 *a*.)

Notozus nitidus, Aaron, Trans. Am. Ent. Soc. xii. p. 218 [1].

Hab. North America, Montana and California [1].—Mexico, Presidio (*Forrer*).

HEDYCHRUM.

Hedychrum, Latreille, Hist. Nat. Crust. et Ins. iii. p. 317 (1802); Aaron, Trans. Am. Ent. Soc. xii. p. 222 (1885).

A widely distributed genus.

1. **Hedychrum violaceum.**

Hedychrum violaceum, Brullé, Hist. Nat. Ins. Hymén. iv. p. 51; Norton, Trans. Am. Ent. Soc. vii. p. 238; Aaron, Trans. Am. Ent. Soc. xii. p. 223 [1].

Hedychrum asperum, Brullé, Hist. Nat. Ins. Hymén. iv. p. 52; Norton, Trans. Am. Ent. Soc. vii. p. 238.

Hedychrum wiltii, Cresson, Proc. Ent. Soc. Phil. iv. p. 305; Norton, Trans. Am. Ent. Soc. vii. p. 237.

Hedychrum louisianæ, Norton, Trans. Am. Ent. Soc. vii. p. 237.

Hab. North America, United States [1], generally distributed.—Mexico [1].

According to Aaron this is a very variable species.

HEDYCHRIDIUM.

Hedychridium, Abeille de Perrin, Ann. Soc. Linn. de Lyon, xxxvi. p. 35 (1879); Aaron, Trans. Am. Ent. Soc. xii. p. 221 (1885).

This genus (or subgenus) merely differs from *Hedychrum* in the claws having a small

perpendicular tooth in the middle, this being absent in *Hedychrum*; the latter has the claws cleft at the apex.

1. **Hedychridium cressoni.**

Hedychrum cressoni, Norton, Trans. Am. Ent. Soc. vii. p. 239[1].

Hab. Mexico[1].

2. **Hedychridium guatemalense.** (Tab. XX. figg. 4, 4 *a*.)

Green, with bluish and golden reflections. Head and thorax coarsely rugosely punctured, the scutellum and metanotum more strongly than the mesonotum; the central part of the metanotum narrowed towards the apex; the sides of this central part with a distinct margin, and raised above the edges of the metanotum, which are roughened by irregular striæ, and not coarsely punctured; the sides project at the apex into an acute triangular projection; the mesopleuræ are coarsely rugosely punctured; the metapleuræ are deeply excavated, smooth, shining, and impunctate. Abdomen shining; the base concave; the first and second segments are closely punctured; the third segment is more strongly punctured, especially behind, and is depressed round the extreme apex; the latter is slightly incised in the middle; the second segment is large, bluish in the middle and at the base; the ventral surface is sparsely punctured, and keeled down the middle. The legs are sparsely covered with rather long white hair; the hind coxæ are finely punctured; the hind tibiæ are grooved and rather rough on the outer side; the apical joints of the tarsi are blackish; the claws have a single median tooth, much smaller than the terminal. The front is moderately hollowed, keeled down the centre and transversely striated. The mandibles are black. Looked at from above the head in front is transverse and nearly so behind; the ocelli are placed almost in the centre.

Length 9 millim.

Hab. Guatemala, Zapote, Panzos (*Champion*).

3. **Hedychridium miliare.** (Tab. XX. figg. 5, 5 *a*.)

Head concave in front and behind; the front deeply excavated, the excavation reaching near to the ocelli, and shining; at the top smooth, the lower half transversely striated and keeled down the centre; mandibles and palpi brownish; the ocelli are placed nearer the frontal excavation than the occiput. The head and pronotum are rugosely punctured, the mesonotum much more strongly so; the scutellum, mesopleuræ, and metanotum are still more strongly punctured; the pro- and metapleuræ are deeply excavated, smooth, and shining. The sides of the metathorax at the apex project into a blunt, shining, impunctate, knob-like point. Abdomen closely punctured, the sides of the first and third segments more strongly than the second (especially the latter

towards the apex); the third segment has a short, shining, impunctate furrow immediately before the apex in the centre; the ventral surface is shining and punctured, but not strongly so. The hind coxæ and femora are punctured; the four hind tibiæ are furrowed and bear some large scattered punctures; the apical joints of the tarsi are brownish.

Length 8 millim.

Hab. GUATEMALA, San Gerónimo (*Champion*).

A smaller insect than *H. guatemalense*, and easily known from it by the apex of the abdomen not being notched, and by its having a short, broad, and deep furrow in the centre. In both species the postscutellum is as in *H. dimidiatum* (Say) and *H. viride* (Cresson); in all four there is a triangular punctured area below the postscutellum.

Subfam. *CHRYSIDINÆ*.

Of this subfamily only two American genera are known—*Chrysis* and *Stilbum*. The latter is American on the authority of Aaron, who (Trans. Am. Ent. Soc. xii. p. 243) records *S. amethystinum* (Fabr.) from Ontario, a species known from the Palæarctic, Oriental, and Australian regions.

CHRYSIS.

Chrysis, Linnæus, Syst. Nat. ed. xii. i. p. 947 (1767).

The most extensive genus of Chrysididæ. Forty North-American species are known, and many inhabit the Neotropical region. It has a wide range over the Old World.

i. *Apical margin of the third abdominal segment entire.*

1. Chrysis mexicana. (Tab. XX. figg. 10, 10 *a*.)

Dull emerald-green, with bluish tints on the legs and thorax; broad, obovate, covered densely with a moderately long fuscous pubescence. Head, pro- and mesonotum closely and uniformly punctured; metanotum with the punctures larger, more irregular, and more widely separated; pleuræ with the punctures still larger, and running into reticulations; basin of face not very deeply excavated, transversely striated. Lateral margin of metathorax acutely triangularly pointed, punctured. Abdomen with the first and second segments uniformly covered with shallow, clearly separated punctures; the third segment more strongly punctured; the base of the first segment almost transverse. Apical margin of the third segment rounded (but not forming an arc of a circle, not being broad enough), entire, the base not angled; the apex without pits, but with a distinct margin, in front of which there is a narrow groove. Antennæ black, the

scape metallic green. Legs green, punctured, covered with long fuscous hair; the tarsi black, the spurs pale. Wings smoky, somewhat paler at the base.

Length 8 millim.

Hab. Mexico, Zacatecas city (*Höge*).

Two specimens from Presidio (*Forrer*) apparently also belong to this species. They are smaller (scarcely 7 millim.), and have the abdomen more strongly punctured, duller, and with scarcely any blue tints; but otherwise do not differ appreciably.

2. **Chrysis sonorensis.** (Tab. XX. figg. 9, 9 *a*.)

Green, with cobalt-blue spots, the head with brassy tints; narrowish, linear; closely and uniformly punctured, but if anything more strongly on the head, pro- and metathorax; the abdomen not so strongly and more closely punctured than the thorax, the third segment with a coarser punctuation than the second. Basin of face with a very shallow excavation, punctured. Eyes small, oblong. Lateral angles of the metathorax not projecting much, and not outwardly, the projection not reaching to the apex of the metathorax, which is rounded inwardly between the apex of the projection and the centre. Abdomen longer than the thorax, the base scarcely excavated; the apex of the third segment raised, projecting upwards (especially in the centre), broadly, but not deeply, retreating backwards in the middle; the eight distinct foveæ are large, longer than broad, and moderately deep in the centre, becoming ill-defined laterally; the third segment is depressed somewhat broadly at the base, broadly raised in front of the foveæ; the foveæ-bearing part of the segment is distinctly narrower than the rest of the segment. The pubescence is long, sparse, and fuscous. Antennæ green, black towards the apex. Legs green, with blue tints, and covered with pale hair; tarsi black. Wings clear hyaline, scarcely infuscated towards the base.

Length 8 millim.

Hab. Mexico, Northern Sonora (*Morrison*).

Closely allied to *C. tota*, Aaron (olim *integra*, Cresson, nec Fabr.); but the latter is longer (10–12 millim.), and has not the basin of the face excavated, the eyes "nearly circular," the posterior angles of the metathorax divergent, and the foveæ much smaller and round.

ii. *Apical margin of the third abdominal segment notched in the middle.*

3. **Chrysis quadri-tuberculata.** (Tab. XX. figg. 7, 7 *a*.)

Green, with slight bluish reflections; the head and thorax covered with rather long fuscous hair; the abdomen with a short pale pubescence on the base and apex, the second segment being almost glabrous. Head and thorax coarsely and uniformly

punctured; the abdomen with the punctuation much less coriaceous, more scattered, and shallower. Basin of face shining, transversely striated; the sides densely covered with white hair. There is a transverse keel above the face, the keel being prolonged in a half-circle so as to enclose the lower ocellus. Above the ocelli are four large, shining, impunctate tubercles; the inner pair blue, and nearer each other than are the lateral ones from them. The posterior lobes of the metathorax large, coarsely punctured, and divergent. Abdomen a little longer than the thorax; the third segment notched and raised in the middle, projecting on either side of the notch into a broad distinctly separated lobe, the notch wider than the lobes, the latter shining and impunctate; the foveal groove wide and deep; the foveæ large, deep, blue, roundish, and closely set, although few in number. Antennæ green, black at the apex. Tarsi blackish. Wings hyaline, slightly infuscated in front.

Length 8 millim.

Hab. GUATEMALA, Capetillo (*Champion*).

A stout and broad insect. The peculiar tubercles on the vertex clearly ally it to *C. faceta*, Aaron, from Colorado; but that species has the abdomen metallic scarlet and gold, with ruby reflections, forming a striking contrast to the colour of the thorax.

iii. *Apical margin of the third abdominal segment with three teeth.*

4. **Chrysis parvula.** (Tab. XX. figg. 6, 6 *a*.)

Chrysis parvula, Fabr. Syst. Piez. p. 176; Dahlbom, Hymen. Eur. ii. p. 191, t. 10. f. 106; Norton, Trans. Am. Ent. Soc. vii. p. 242; Aaron, Trans. Am. Ent. Soc. xii. p. 231, t. 8. ff. 46 & 47[1].

Chrysis carinata, Say, Ann. Macl. Lyc. i. p. 82; Complete Writings, i. p. 384.

Chrysis tridens, Lep. de St.-Farg. & Serv. Encycl. x. p. 495 (*Pyria*); Brullé, Hist. Nat. Ins. Hymén. iv. p. 46.

Chrysis mucronata, Brullé, Hist. Nat. Ins. Hymén. iv. p. 45; Norton, Trans. Am. Ent. Soc. vii. p. 242.

Chrysis 3-*dentata,* Dahlbom, Dispos. Hymen. p. 15.

Chrysis virens, Cresson, Proc. Ent. Soc. Phil. iv. p. 309.

Hab. NORTH AMERICA, United States[1].—MEXICO[1], Northern Sonora (*Morrison*), Presidio (*Forrer*); GUATEMALA, El Reposo 800 feet, San Gerónimo (*Champion*); NICARAGUA, Chontales (*Janson*); PANAMA (*Boucard*).—SOUTH AMERICA, Brazil.

A widely distributed and variable species.

5. **Chrysis selenia.**

Chrysis selenia, Costa, Ann. del Mus. Zool. del Univ. di Napoli (Anno ii. 1862), 1864, p. 67, footnote no. 4[1].

" *C.* angustata, ano tridentato, scutello conico, capite thoraceque crasse punctatis; viridis, abdominis dorsi segmento primo macula minuta indeterminata, secundo margine baseos coarctato maculaque postica transverse semilunata, tertio margine baseos in lineam mediam posterius continuato margineque postico

obscure violaceis ; segmenti ultimi serie ante-apicali a carina in dentem apicalem medium terminata divisa, margine apicali polito: subtus viridi-auratus; antennis, scapo et flagelli basi exceptis, fuscis.—Longit. mill. 8."

"Specie intermedia tra la *lunigera* e la *parvula*: riunendo le macchie dorsali del secondo e terzo anello addominale della prima specie, con i margini basilari degli stessi anelli strangolati e coloriti come nella seconda."

Hab. MEXICO [1].

iv. *Apical margin of the third abdominal segment with four teeth.*

* *The third abdominal segment without foveæ or a furrow before the teeth.*

6. **Chrysis fasciata.**

Chrysis fasciata, Fabr. Syst. Piez. p. 175 ; Dahlbom, Hym. Eur. ii. p. 197 [1].
Chrysis punctatissima, Spinola, Ann. Soc. Ent. Fr. 1840, p. 200 [2].

Hab. MEXICO, Ventanas 2000 feet (*Forrer*) ; GUATEMALA, San Gerónimo (*Champion*) ; PANAMA (*Boucard*).—SOUTH AMERICA, Cayenne [2], Brazil [1].

The specimen from Guatemala is brilliant emerald-green, the abdomen green with a decided bluish tinge ; and, if anything, the punctuation seems stronger than usual.

7. **Chrysis montezuma.**

Dark purple, with brassy and greenish reflections. Head and thorax coarsely and strongly punctured, the punctures on the scutellum longer, rounded, and more widely separated ; the second and third segments of the abdomen uniformly punctured ; the first segment with the punctures larger and more widely separated. The sides of the basin of the face are striated and covered with longish white hair ; the centre is almost impunctate. The third abdominal segment is depressed transversely near the base ; there is no depression nor foveæ before the apical teeth, which are large, acutely triangular, and of nearly uniform size. Antennæ black, the scape dull bronzy. Wings hyaline, slightly infuscated, the stigma and nervures pale fuscous.

Length 11 millim.

Hab. MEXICO, Valladolid in Yucatan (*Gaumer*).

Besides the differences in coloration this species is considerably broader and stouter than *C. fasciata* ; and the basal segment of the abdomen is not so strongly trilobed. The third segment becomes gradually narrowed towards the apex, which is not quite so truncated as in *C. fasciata* ; the depression at its base is more sharply defined, and the punctuation is deeper and stronger ; the teeth are shorter and the incisure narrower. The separation between the pro-, meso-, and metathorax is more clearly marked, especially if looked at from the side.

An example of what is perhaps the same species agrees with the type in all tangible points, except that the apex of the third abdominal segment is depressed, the depression separating the tooth-bearing part from the rest of the segment, and that this part is almost impunctate.

** *The third abdominal segment with foveæ and a furrow.*

8. **Chrysis cœrulans.** (Tab. XX. fig. 11, 11 *a*.)

Chrysis cœrulans, Fabr. Syst. Piez. p. 173; Dahlbom, Hymen. Eur. ii. p. 212, t. 11. 110; Radoskovsky, Horæ Soc. Ent. Ross. iii. p. 305, t. 4. f. 19; Brullé, Hist. Nat. Ins. Hymén. iv. p. 38; Aaron, Trans. Am. Ent. Soc. xii. p. 236[1].

Chrysis nitidula, Brullé, Hist. Nat. Ins. Hymén. iv. p. 37.

Chrysis bella, Cresson, Proc. Ent. Soc. Phil. iv. p. 312.

Hab. North America, United States[1].—Mexico, Northern Sonora (*Morrison*), Presidio (*Forrer*); Guatemala, San Gerónimo, Paraiso (*Champion*); Costa Rica, Cache (*Rogers*); Panama (*Boucard*), Volcan de Chiriqui 2000 to 3000 feet (*Champion*).—South America, Cayenne.

A variable species in colour, size, and sculpture, and also in the form of the apical teeth.

9. **Chrysis panamensis.** (Tab. XX. figg. 8, 8 *a*.)

Brilliant emerald-green; a band across the mesonotum, a mark on the metanotum, and two broad bands, united by a longitudinal one, on the second abdominal segment, violet. Head and thorax coarsely and uniformly punctured; basal segment of the abdomen covered with large, round, clearly separated punctures; the other segments with the punctures much smaller and shallower, but stronger on the apex of the third Basin of face punctured, but very slightly in the centre; above it the vertex is reticulated, and there is a ∩-shaped keel which encloses the lower ocellus. The teeth on the third abdominal segment are short and triangular; the incisions broad and shallow; the foveæ are placed in a shallow narrow groove; there are two large central foveæ, the others being small and indistinct; in front of the groove the segment bears some small, scattered, shallow punctures. The base of the abdomen has three shallow depressions. The apex of the metathorax in the middle projects into a blunt, curved, nipple-like projection, above which the metanotum is raised.

Length 12 millim.

Hab. Panama, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

A longer and narrower (compared with the length) insect than *C. cœrulans*, and *inter alia* readily known from it by the projecting middle of the metathorax. The wings, moreover, are not so dark, especially at the base; and the sculpture is stronger.

10. **Chrysis rastellum.**

Chrysis rastellum, Brullé, Nat. Hist. Ins. Hymén. iv. p. 32[1].

Hab. Mexico[1].

v. *Apical margin of the third abdominal segment with six teeth.*

11. **Chrysis pilifrons.** (Tab. XX. figg. 13, 13 *a*.)

Head and thorax dark green, mixed with dark purple; the abdomen of a brighter green, marked with broad purplish stripes across the segments. Head and thorax uniformly covered with large (comparatively) round punctures; the pleuræ with much deeper punctures; first abdominal segment with the punctures larger and more widely separated than on the second and third segments. Basin of face punctured laterally, the middle almost impunctate; the sides covered with long white hair. The rest of the head and thorax sparsely covered with long fuscous hair; the abdomen glabrous, except towards the apex. There is a ⌐¬-shaped keel below the ocelli. The base of the first abdominal segment is broadly, but not deeply, excavated (not divided into three lobes). The teeth on the third segment are equal in size, and almost equally distant one from another; the lateral margin is straight, except that it bulges out at the first tooth; the pits are indistinct, forming mere ill-defined depressions in the furrow, which is broad and moderately deep; the apex of the segment is impunctate or nearly so. Antennæ black, the basal three joints green. Wings infuscated, lighter towards the apex.

Length 12 millim.

Hab. Panama (*Boucard*).

12. **Chrysis proxima.** (Tab. XX. figg. 12, 12 *a*.)

Similar in colour and sculpture to the preceding (*C. pilifrons*), but smaller (8–9 millim.). The basin of the face much more densely covered with white hair (only the extreme centre being bare); there is no transverse keel above it, but a ∩-shaped keel starts from near the eyes above the depression and encloses the lower ocellus. The lateral margin of the third abdominal segment has a distinct curve, and the outermost tooth is not placed at the extreme edge, as in *C. pilifrons*, but at a little distance from it; the teeth are smaller and more irregularly placed; the incisions are unequal—the central is the largest; there is no distinct groove or pits, although they are very faintly indicated; and the base of the abdomen is distinctly trilobate.

Hab. Panama (*Boucard*).

Subfam. *PARNOPINÆ.*

A very distinct group, readily known by the elongated trophi. Two North-American species have been described.

PARNOPES.

Parnopes, Fabricius, Syst. Piez. p. 177 (1804).

1. **Parnopes fulvicornis.** (Tab. XX. figg. 1, 1*a*.)

Viridis, rugoso-punctata, flagello antennarum, tegulis, postscutello, geniculis, femoribus, tibiis, tarsis abdominisque apice, fulvis; alis hyalinis, apice fere fumatis.
Long. 9 millim.

Hab. Mexico, Presidio (*Forrer*).

Face densely covered with white hair, the hair concealing the sculpture; vertex strongly punctured; clypeus dull fulvous; mandibles black at the base and apex, the middle part fulvous. Thorax much more strongly punctured than the head; the punctuation on the centre of the mesonotum less strong than on the pronotum and scutellum; mesopleuræ densely covered with white hair; postscutellum deeply and roundly incised at the apex; the sides almost truncated; the sides of the scutellum and postscutellum densely pilose. Abdomen strongly punctured (but less so than the thorax); the segments depressed at the apex, this part being fulvous and covered with white pile (the pile longer and denser at the sides); apical segment with an elongated deep wide fovea on either side, the foveæ being separated by a partition which is depressed in the centre, and does not reach the level of the part of the segment behind it; the extreme apex spinose, the centre bearing two spines which are longer and thicker than the others; the ventral surface scarcely punctured, dull fulvous, darkest in the centre. Legs covered with a white pile. The head and thorax have a coppery tint, and the abdomen a bluish tinge. The parapsidal furrows are scarcely indicated; the pronotum has a depression in the middle, especially noticeable in front.

P. edwardsii, Cresson, from California and Vancouver, has the apex of the postscutellum entire; and *P. chrysoprasina*, Smith, from North Carolina, has the apex of the postscutellum incised. The latter differs from *P. fulvicornis* in having the postscutellum and the abdomen green, and the wings fulvo-hyaline; and no mention is made in the description of the white pubescence so characteristic of *P. fulvicornis*.

SUPPLEMENT.

THE following species of Tenthredinidæ, Cynipidæ, Figitidæ, Chalcididæ, Trigonalidæ, and Proctotrupidæ have been described or noticed by me since the preceding pages were published *. Some errata in the published text and plates are also corrected here.

STRONGYLOGASTER (p. 4).

11. **Strongylogaster melanostoma.**

Strongylogaster melanosoma, anteà, p. 10.

The specific name of this species is incorrectly printed on p. 10.

16. **Strongylogaster leucostoma.**

Strongylogaster leucosoma, anteà, p. 12.

29. **Strongylogaster rogenhoferi.**

Strongylogaster rogenhoferi, Camer. Trans. Ent. Soc. Lond. 1884, p. 483 [1].

Hab. MEXICO, Orizaba (*Bilimek, in Mus. Vind. Cæs.* [1]).

30. **Strongylogaster fumipennis.** (Tab. XX. fig. 15.)

Strongylogaster fumipennis, Camer. Trans. Ent. Soc. Lond. 1884, p. 484 [1].

Hab. MEXICO [1].

BLENNOCAMPA (p. 31).

7. **Blennocampa bicolorata.**

Blennocampa bicolorata, Camer. Trans. Ent. Soc. Lond. 1884, p. 483 [1].

Hab. MEXICO, Chapultepec and Orizaba (*Bilimek, in Mus. Vind. Cæs.* [1]).

EMPHYTUS (p. 35).

1. **Emphytus aztecus.**

Emphytus aztecus, Camer. Mem. & Proc. Manch. Lit. and Phil. Soc. i. p. 163 (1888) [1].

Hab. MEXICO, Orizaba (*F. D. G. and H. H. Smith* [1]).

* [The types of the species marked with an asterisk cannot now be found.—ED.]

Subfam. *NEMATINA* (to precede the subfamily *Hylotomina*, p. 35).

NEMATUS.

Nematus, Jurine, Nouv. méth. Class. Hymén. p. 59 (1807).

1. **Nematus mexicanus** *.

Nematus mexicanus, Camer. Trans. Ent. Soc. Lond. 1884, p. 481 [1].

Hab. MEXICO, Northern Sonora (*Morrison* [1]).

EUURA (to follow the genus *Nematus*).

Euura, Newman, Ent. Mag. iv. p. 259 (1837).
Cryptocampus, Hartig, Fam. d. Blatt- und Holzwesp. p. 221 (1837).

1. **Euura mexicana.** (Tab. XX. fig. 17.)

Euura mexicana, Camer. Trans. Ent. Soc. Lond. 1884, p. 482 [1].

Hab. MEXICO, Northern Sonora (*Morrison* [1]).

HEMICHROA (to follow the genus *Euura*).

Hemichroa, Stephens, Illustr. Brit. Ent., Mand. vii. p. 55 (1835).
Leptocerca, Hartig, Fam. d. Blatt- und Holzwesp. p. 228 (1837).

1. **Hemichroa nigricans** *. (Tab. XX. fig. 16.)

Hemichroa nigricans, Camer. Trans. Ent. Soc. Lond. 1884, p. 482 [1].

Hab. MEXICO, Northern Sonora (*Morrison* [1]).

HYLOTOMA (p. 35).

Hylotoma basimacula (p. 36). (Tab. XX. fig. 14.)

The reference to the figure was omitted on p. 36.

PTILIA (p. 43).

5. **Ptilia crassula.** (Tab. XX. fig. 18.)

Ptilia crassula, Camer. Trans. Ent. Soc. Lond. 1884, p. 484 [1].

Hab. MEXICO, Northern Sonora (*Morrison* [1]).

6. **Ptilia luteiventris.**

Ptilia luteiventris, Camer. Trans. Ent. Soc. Lond. 1884, p. 485 [1].

Hab. MEXICO, Northern Sonora (*Morrison* [1]).

7. **Ptilia nigerrima.** (Tab. XX. fig. 19.)

Ptilia nigerrima, Camer. Trans. Ent. Soc. Lond. 1884, p. 485 [1].

Hab. Mexico, Northern Sonora (*Morrison* [1]).

ANDRICUS (to follow the genus *Synergus*, p. 72).

Andricus, Hartig, in Germar's Zeitschr. f. Ent. ii. p. 185 (1840).
Aphilothrix, Förster, Verh. zool.-bot. Ges. Wien, xix. pp. 331, 336 (1869).

This is a dimorphic genus, *Andricus* being the spring bisexual and *Aphilothrix* the autumnal agamic (unisexual) form.

1. **Andricus (Aphilothrix) aztecus.** (Tab. XX. fig. 23.)

Andricus (*Aphilothrix*) *aztecus*, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 261 (1897) [1].

Hab. Mexico, Northern Sonora (*Morrison* [1]).

AULAX (to follow the genus *Andricus*).

Aylax, Hartig, in Germar's Zeitschr. f. Ent. ii. p. 186 (1840).
Aulax, Dalla Torre, Cat. Hymen. ii. p. 119 (1893).

1. **Aulax rufipes.** (Tab. XX. fig. 21.)

Aulax rufipes, Camer. Trans. Ent. Soc. Lond. 1884, p. 485 [1].

Hab. Mexico (*Bilimek, in Mus. Vind. Cæs.* [1]).

EUCŒLA (to precede the genus *Cothonaspis*, p. 73).

Eucoila, Westwood, Mag. Nat. Hist. vi. p. 494 (1833).
Eucœla, Dalla Torre, Cat. Hymen. ii. p. 15 (1893).

1. **Eucœla claripennis** *.

Eucoila claripennis, Camer. Mem. & Proc. Manch. Lit. and Phil. Soc. ii. p. 14 (1889) [1].

Hab. Mexico, Vera Cruz (*H. H. Smith* [1]).

2. **Eucœla mexicana** *.

Eucoila mexicana, Camer. Mem. & Proc. Manch. Lit. and Phil. Soc. ii. p. 14 (1889) [1].

Hab. Mexico, Orizaba (*F. D. G. and H. H. Smith* [1]).

3. **Eucœla marginicollis** *.

Eucoila marginicollis, Camer. Mem. & Proc. Manch. Lit. and Phil. Soc. ii. p. 15 (1889) [1].

Hab. Mexico, Orizaba (*F. D. G. and H. H. Smith* [1]).

4. **Eucœla incisa.**

Eucœla incisa, Camer. Trans. Ent. Soc. Lond. 1884, p. 486 [1].

Hab. MEXICO (*Bilimek, in Mus. Vind. Cæs.* [1]).

COTHONASPIS (p. 73).

2. **Cothonaspis rufiventris.**

Cothonaspis rufiventris, Camer. Trans. Ent. Soc. Lond. 1884, p. 486 [1].

Hab. MEXICO (*Bilimek, in Mus. Vind. Cæs.* [1]).

GRONOTOMA (to follow the genus *Cothonaspis*, p. 73).

Gronotoma, Förster, Verh. zool.-bot. Ges. Wien, xix. pp. 342, 346 (1869).

1. **Gronotoma gracilicornis** *.

Gronotoma gracilicornis, Camer. Mem. & Proc. Manch. Lit. and Phil. Soc. ii. p. 15 (1889) [1].

Hab. MEXICO, Orizaba (*F. D. G. and H. H. Smith* [1]).

ANACHARIS (to precede the genus *Balna*, p. 73).

Anacharis, Dalman, Anal. Ent. p. 96 (1823).
Megapelmus, Hartig, in Germar's Zeitschr. f. Ent. ii. p. 186 (1840).

1. **Anacharis mexicanus.** (Tab. XX. fig. 22.)

Megapelmus mexicanus, Camer. Trans. Ent. Soc. Lond. 1884, p. 487 [1].

Hab. MEXICO (*Bilimek, in Mus. Vind. Cæs.* [1]).

IBALIA (to follow the genus *Anacharis*).

1. **Ibalia ruficollis.** (Tab. XX. fig. 20.)

Ibalia ruficollis, Camer. Trans. Ent. Soc. Lond. 1884, p. 488 [1].

Hab. MEXICO, Pinos Altos in Chihuahua (*Buchan-Hepburn* [1]).

SMICRA (p. 78).

52. **Smicra ardens.**

Smicra ardens, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 262 (1897) [1].

Hab. MEXICO, Orizaba (*F. D. G. and H. H. Smith*).

53. **Smicra divinatrix.**

Smicra divinatrix, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 263 [1].

Hab. HONDURAS. Ruatan I. (*Gaumer* [1]).

54. **Smicra fasciola.**

Smicra fasciola, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 264 (1897) [1].

Hab. MEXICO, Northern Sonora (*Morrison* [1]).

55. **Smicra armillata.**

Smicra armillata, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 264 (1897) [1].

Hab. MEXICO, Orizaba (*F. D. G. and H. H. Smith* [1]).

LIRATA (p. 102).

Lirata luteogaster (p. 102).

Figured by me under the name *Schizaspidia flaviventris*, on Tab. V. figg. 16, 16 *a*.

KAPALA (p. 103).

Kapala furcata (p. 103).

Figured by me under the name *Schizaspidia furcata*, on Tab. V. figg. 17, 17 *a–d*.

Subfam. *PERILAMPINÆ* (to precede the subfamily Eupelminæ, p. 114).

PERILAMPUS.

Perilampus, Latreille, Gen. Crust. et Ins. iv. p. 30 (1809).

1. **Perilampus mexicanus.**

Perilampus mexicanus, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 265 (1897) [1].

Hab. MEXICO, Vera Cruz (*H. H. Smith* [1]).

2. **Perilampus antennatus.**

Perilampus antennatus, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 266 (1897) [1]. nec Walker, 1834

Hab. MEXICO, Vera Cruz (*H. H. Smith* [1]).

ICHNEUMON (p. 137).

Ichneumon mexicanus (p. 144). (Tab. VIII. fig. 1.)

The reference to the figure was omitted on p. 144.

Ichneumon suffultus (p. 144). (Tab. VIII. fig. 2.)

The reference to the figure was omitted on p. 144.

MESOSTENUS (p. 214).

Mesostenus brachygaster (p. 219).

Hab. GUATEMALA, Las Mercedes (*Champion*).

The locality was omitted on p. 219.

LABENA (p. 277).

Labena grallator (p. 277). (Tab. XII. fig. 7.)
The reference to the figure was omitted on p. 277.

BRACON (p. 312).

Bracon albipalpis (p. 315). (Tab. XVII. fig. 6, ♀.)
The reference to the figure of the female of this species was omitted on p. 315.

RHOGAS (p. 389).

Rhogas bugabensis (p. 391). (Tab. XVII. figg. 1 *a–c.*)
The reference to the figures of the mouth-parts of this insect was omitted on p. 391.

TRIGONALYS (p. 434).

4. Trigonalys scutellaris.

Trigonalys scutellaris, Camer. Ann. & Mag. Nat. Hist. (6) ix. p. 267 (1897) [1].

Hab. MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith* [1]).

5. Trigonalys maculifrons.

Trigonalys maculifrons, Camer. Ann. & Mag. Nat. Hist. (6) ix. p. 268 (1897) [1].

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith* [1]).

6. Trigonalys apicipennis.

Trigonalys apicipennis, Camer. Ann. & Mag. Nat. Hist. (6) ix. p. 269 (1897) [1].

Hab. MEXICO, Atoyac in Vera Cruz (*H. H. Smith* [1]).

7. Trigonalys flavonotata.

Trigonalys flavonotata, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 270 (1897) [1].

Hab. MEXICO, Xucumanatlan in Guerrero 7000 feet (*H. H. Smith* [1]).

8. Trigonalys fasciatipennis.

Trigonalys fasciatipennis, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 271 (1897) [1].

Hab. MEXICO, Atoyac in Vera Cruz [♀], Venta de Zopilote in Guerrero [♂] (*H. H. Smith* [1]).

9. Trigonalys championi. (Tab. XX. fig. 24.)

Trigonalys championi, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 273 (1897) [1].

Hab. GUATEMALA, Panima in Vera Paz (*Champion* [1]).

DRYINUS (p. 444).

Dryinus maculicornis (p. 444).

To the localities given, add:—GUATEMALA, Mirandilla (*Champion*).

The Guatemalan habitat was omitted on p. 444.

EPYRIS (p. 449).

10. **Epyris rufipes.**

Epyris rufipes, Camer. Mem. & Proc. Manch. Lit. and Phil. Soc. i. p. 173 (1888) [1].

Hab. MEXICO, Orizaba (*F. D. G. and H. H. Smith* [1]).

11. **Epyris punctatus.**

Epyris punctatus, Camer. Mem. & Proc. Manch. Lit. and Phil. Soc. i. p. 174 (1888) [1].

Hab. MEXICO, Orizaba (*F. D. G. and H. H. Smith* [1]).

12. **Epyris orizabæ.**

Epyris orizabæ, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 273 (1897) [1].

Hab. MEXICO, Orizaba (*F. D. G. and H. H. Smith* [1]).

13. **Epyris palliditarsis.**

Epyris palliditarsis, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 274 (1897) [1].

Hab. MEXICO, Teapa in Tabasco (*H. H. Smith* [1]).

14. **Epyris scutellaris.**

Epyris scutellaris, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 275 (1897) [1].

Hab. MEXICO, Tierra Colorada in Guerrero 2000 feet (*H. H. Smith* [1]).

15. **Epyris montezuma.**

Epyris montezuma, Camer. Ann. & Mag. Nat. Hist. (6) xix. p. 276 (1897) [1].

Hab. MEXICO, Orizaba (*F. D. G. and H. H. Smith* [1]).

MESITIUS (p. 455).

Mesitius longicollis (p. 455).

The locality in Mexico, Cordova, was omitted on p. 455.

CORRIGENDUM.

On Tab. XVII. fig. 15 a species of Ichneumonidæ, subfam. Ophioninæ, is figured under the name *Pharsalia albofacialis*: this insect is not mentioned in the text, and as the locality-label has been lost, it is not advisable to describe it now.

INDEX.

[Names in small capitals refer to Families, &c.; those in roman type to the chief reference to each species included in the work; those in italics to species incidentally mentioned, synonyms, &c.]

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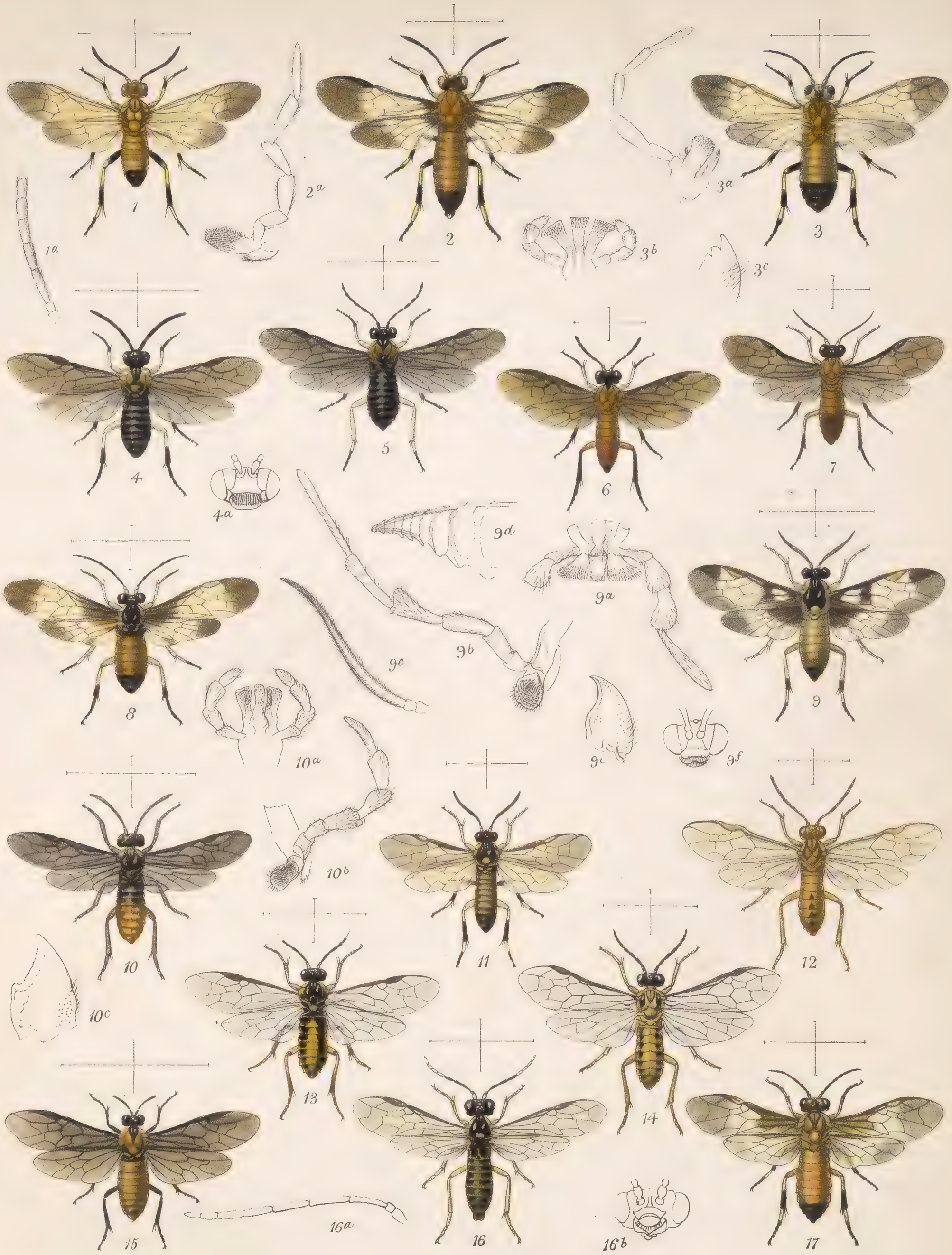

1, 1a LOBOCERAS KLUGI.
2, 2a HYLOTOMA ANNULIPES.
3, 3a–3c MONOPHADNUS ANNULIPES.
4, 4a PTILIA IMITATRIX.
5, STRONGYLOGASTER DIVERSIPES.
6 LOBOCERAS FUSCIPENNE.
7 STRONGYLOGASTER LEUCOSOMA.
8 „ MACULIPENNIS.
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10, 10a–10c „ BIRAMOSA.
11 HYLOTOMA SEMIFUSCA.
12 LOBOCERAS CALCAR.
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17 STRONGYLOGASTER FUSCIPENNIS.

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Hanhart imp
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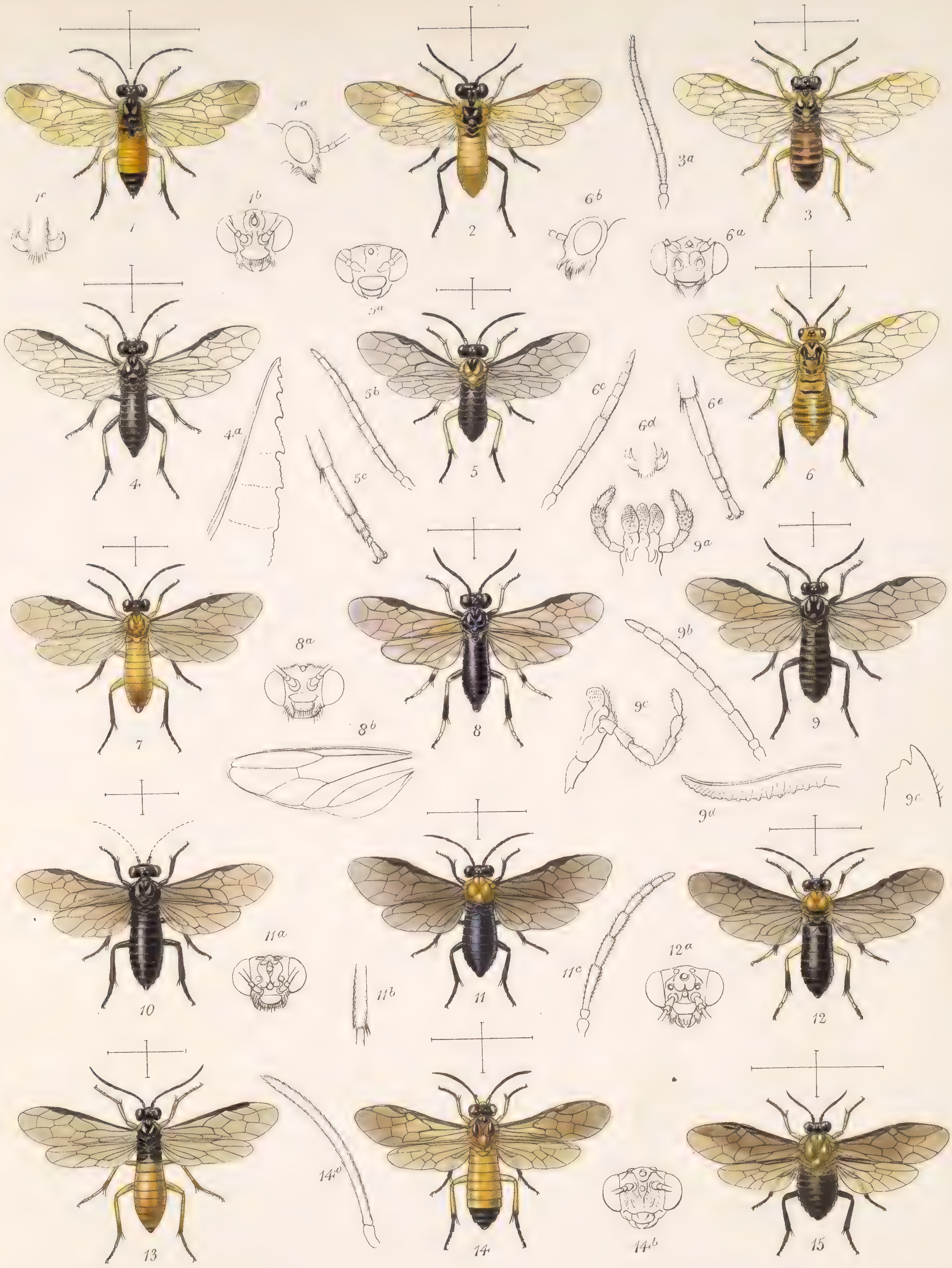

1, 1a-1c STRONGYLOGASTER PILICORNIS.
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3, 3a " LÆTUS.
4, 4a " BICOLOR.
5, 5a-5c SELANDRIA CRASSA.
6, 6a-6e MONOPHADNUS TRIMACULATUS.
7 " OCHRA.
8, 8a, 8b " VIOLACEIPENNIS.
9, 9a-9e PŒCILOSOMA MEXICANUM.
10. BLENNOCAMPA CÆRULEA.
11, 11a-11c BLENNOCAMPA INTERMEDIA.
12, 12a " ALBIFEMORALIS.
13 EMPHYTUS CHAMPIONI.
14, 14a, 14b HYLOTOMA BIVITTATA.
15 SERICOCERA VILLOSA.

W. Purkiss lith. Hanhart imp 324.

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2 SERICOCERA LEUCOTARSIS.
3 „ LEUCOPODA.
4, 4a-4d ♀, 5, 5a ♂ „ ALTERNATOR.
6, 6a-6e INCALIA HIRTICORNIS.
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9, 9a DECAMERIA NIGRIVENTRIS.
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12, 12a-12f PERANTHRIX WESTWOODII.
13, 13a DERECYRTA RUGIFRONS.
14, 14a, 14b ORYSSUS NIGRICANS.

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I HYLOTOMA NIGRICEPS.
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3,3a,3b LALOCERAS KLUGII.
4,4a,4b DECAMERIA RUFIVENTRIS.
5 DECAMERIA FACILIS.
6 PERREYIA CHAMPIONI.
7, 7a CYNIPS GUATEMALENSIS.
8 CYNIPS IMITATOR.
9,9a,9b 9c NERALSIA RUFIPES.
10 10a SYNERGUS FILICORNIS.
11,11a,11d LEUCASPIS MEXICANA.
12, 12a, LEIOPTERON WESTWOODII.
13, 13a, SMICRA MIRANDA.
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17, 17a, 17b DIOMORUS MAYRI.

W. Purkiss lith. Hanhart imp
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3 " PANAMENSIS.
4 " GENICULATA.
5 " CARDINALIS.
6 " CENTRALIS.
7 " MACULICOLLIS.
8 SMICRA OCTOMACULATA.
9 " NIGRIFRONS.
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11, 11a-f EURYTOMA AURIFRONS.
12 " PETIOLIVENTRIS.
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16, 16a SCHIZASPIDIA FLAVIVENTRIS.
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18, 18a, b LOPHYROCERA STRAMINEIPES.
19, 19a, b " NIGROMACULATA.
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W. Purkiss lith.
Hanhart imp
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1,1a HONTALIA CÆRULEA
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4,4a-c " MACULIPES.
5,5a,b PRIONOPELMA PILIPES.
6,6a-c AMOTURA ANNULICORNIS.

7,7a LELAPS FERRUGINEA.
8 " ALBIPES.
9,9a EUPELMUS GIGAS.
10,10a " TESTACEUS
11 " ERYTHROTHORAX.

12 EUPELMUS COMPRESSICORNIS.
13 ASEIRBA CAUDATA
14,14a ACANTHOCHALCIS NIGRICANS
15 LUTNES CRASSICORNIS.
16,16a " ORNATICORNIS.
18,18a-e ORASEMA STRAMINEIPES.

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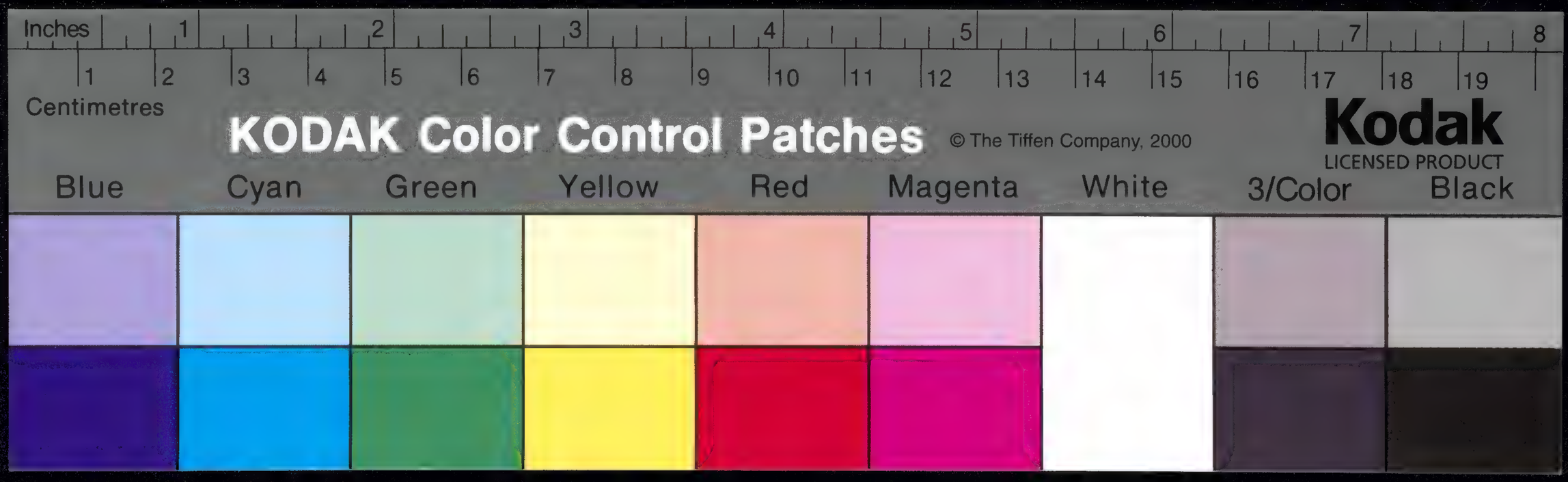

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380.

1 PATROCLUS NIGROCERULEUS.
2 ICHNEUMON MERIDIONALIS.
3 " COSTARICENSIS.
4 " PTERELAS.
5 " ASTARTE.
6 " BILIMEKI.
7 " BELLATULUS.
8 " SYCOPHANTUS.

9 ICHNEUMON LARICEUS.
10 " MUNEROSUS
11 " CURTITUBERCULATUS.
12 " TUMIDULUS.
13 " CELATUS.
14 " EROS.
15 " FORRERI.
16 " SALVINI.
17 " CHAMPIONI.

18 ICHNEUMON GODMANI.
19 " IXMPHATUS.
20 " GUATEMALENSIS.
21 " ILLACESSITUS.
22 " TURPICULUS.
23 " PARSIMONICUS.
24 " ALVARADO.
25 " EXQUISITUS.

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Hymenoptera. Vol. I.

1 ICHNEUMON MEXICANUS.
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4 " PANAMENSIS.
5 " MULTIPLAGIATUS.
6 " MACULOSUS.
7 " SUBSECIVUS.
8 " YUCATANENSIS.
9 ICHNEUMON VALLADOLIDENSIS.
10 " DEMOCRATICUS.
11 " OPINIOSUS.
12 " TRUNCULENTUS.
13 " SUFFRAGENEUS.
14 " ARIEL.
15 " CENTRALIS.
16 " MOTIVUS.
17 " BEATUS.
18 ICHNEUMON AZTECUS.
19 " PILIVENTRIS.
20 " NOTABILIS.
21 " ORIZABENSIS.
22 " CONICUS.
23 ŒDICEPHALUS GLUCIDATUS.
24 ICHNEUMON FORTISPINA.
25 TROGUS PULCHRIPENNIS.

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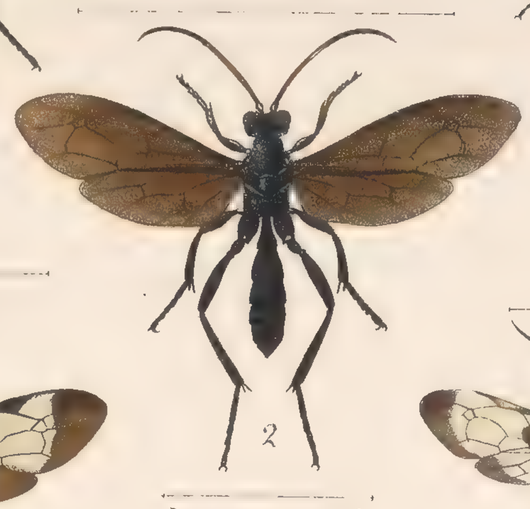
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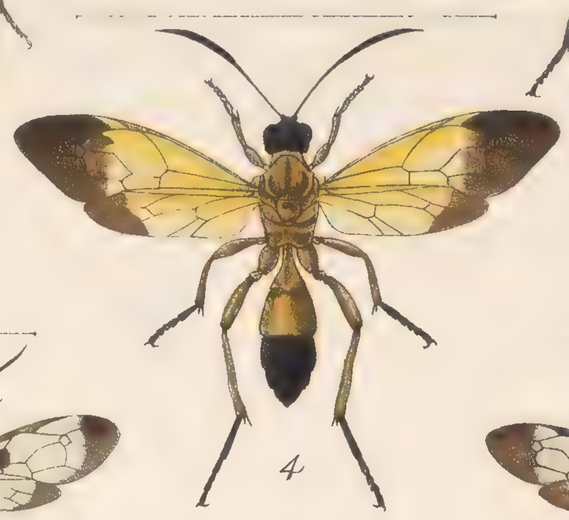
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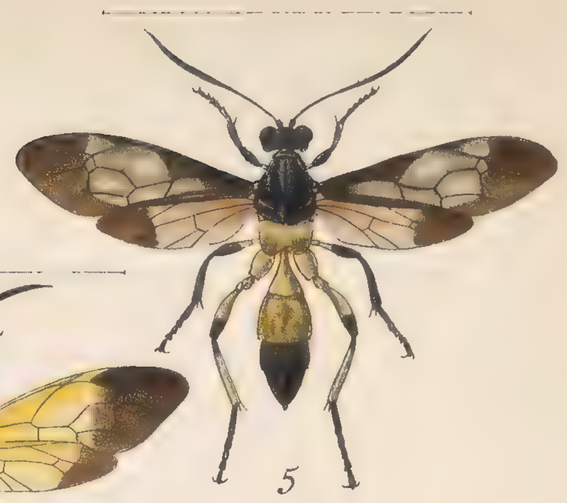
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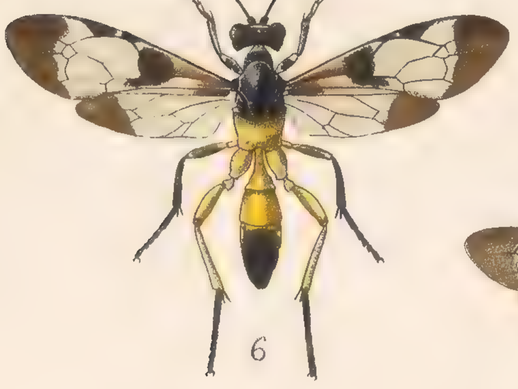
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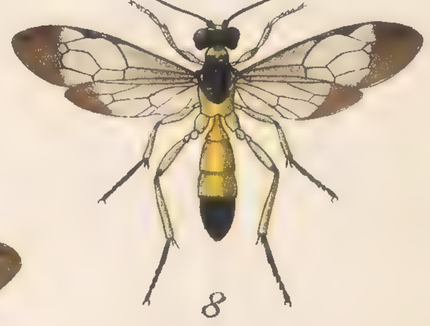
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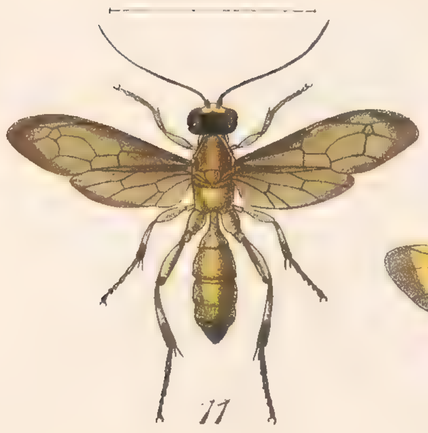
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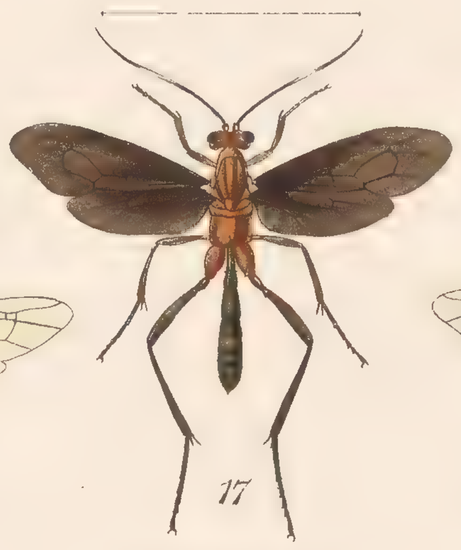
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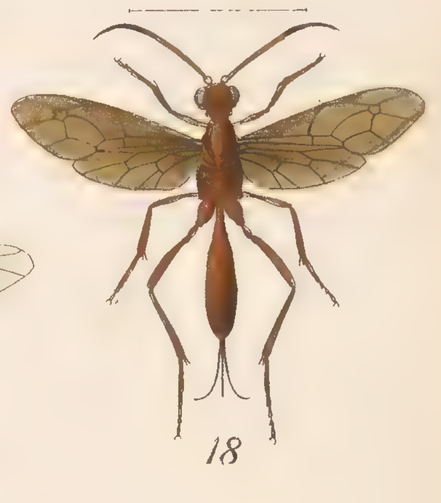
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1 TROGUS BLANDITA.
2 „ ORNATICORNIS.
3 ABZARIA LATIPETIOLARIS.
4 JOPPA MELANOCEPHALA.
5 „ NIGRICEPS.
6 „ XANTHOSTOMA.
7 „ SUMICHRASTI.
8 „ MODESTA.

9 JOPPA VARIPES.
10 „ MELANOSTIGMA.
11 „ FUMIPENNIS.
12 CRYPTUS BICOLOR.
13 „ HEBETIS
14 „ XANTHOSTIGMA.
15 „ SOLABILIS.
16 JOPPIDIUM RUFICOLLIS.

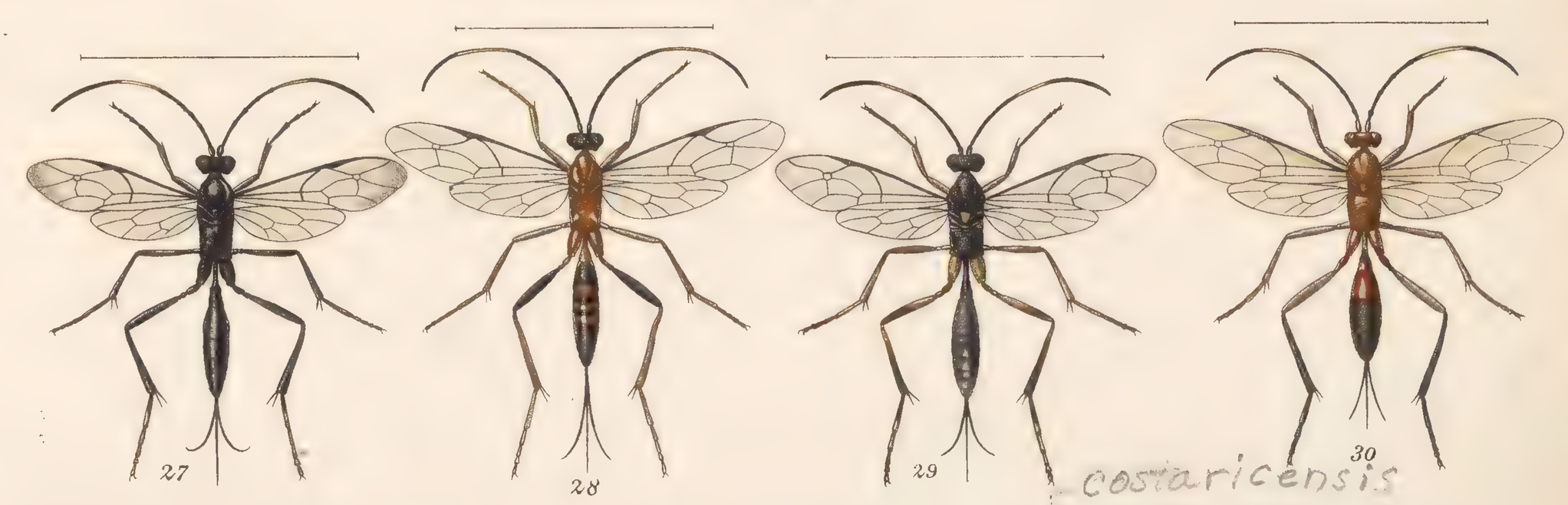
17 JOPPIDIUM CÆRULEIPENNIS.
18 „ YUCATANENSIS.
19 POLYCYRTUS TINCTIPENNIS.
20 „ ERYTHROSTERNUS
21 „ BLANDITUS.
22 „ FULVOFEMORATUS
23 POLYÆNUS CHAMPIONI.
24♀,25♂ „ BASIMACULA.

W. Purkiss lith
Hanhart imp
394.

KODAK Color Control Patches © The Tiffen Company, 2000
Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Inches 1 2 3 4 5 6 7 8

1 2 3 4 5 6 7 8 9 10 11

12 13 14 15 16 17 18 19 20 21 22 23 24 25 26


27 28 29 30

1 POLYCYRTUS OBTUSISPINA.
2 „ COLLINUS.
3 „ CONFIRMATUS.
4 „ CRUCIATUS.
5 „ FULVOFEMORATUS.
6 „ MONTEZUMA.
7 „ CANALICULATUS.
8 „ CHONTALENSIS.
9 „ GUATEMALENSIS.
10 „ NIGRITIBIALIS.

11 POLYCYRTUS FULVIPES.
12 „ XANTHOTHORAX.
13 MESOSTENUS ~~NICARAGUENSIS~~ costaricensis.
14 „ LAMENTARIUS.
15 „ ANNULITARSIS.
16 „ INTRUDENS.
17 „ ORNATIFRONS.
18 „ VIVIDUS.
19 „ MEGAPODA.
20 „ NIGERRIMUS.

21 MESOSTENUS PARVITUBERCULATIS.
22 PHYGADEUON MELANOPODA.
23 HEMITELES FLAVOVARIEGATUS.
24 „ ORNATICEPS.
25 „ ALBITUBERCULATIS.
26 „ MONTEZUMA.
27 CHRISTOLIA PANAMENSIS.
28 POLYCYRTUS CURVIVENTRIS.
29 CHRISTOLIA MENTICULA.
30 CRYPTANURA INCAUTA.

W. Purkiss lith.

Hanhart imp.
399.

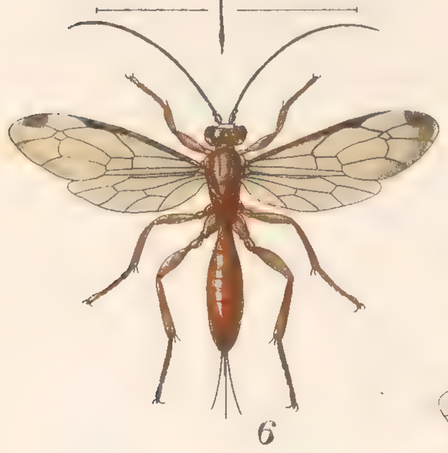
1

2

3

4

5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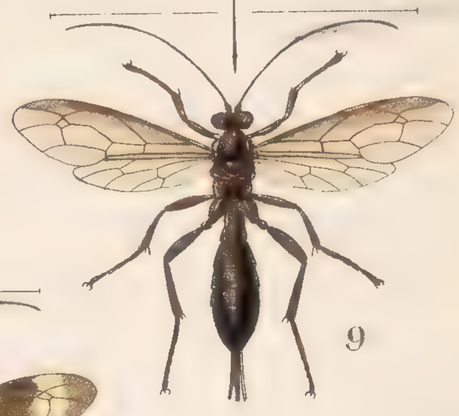
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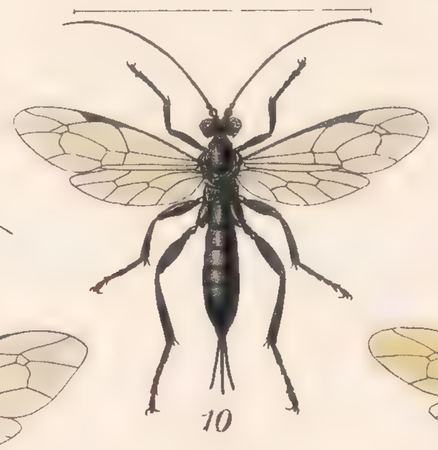
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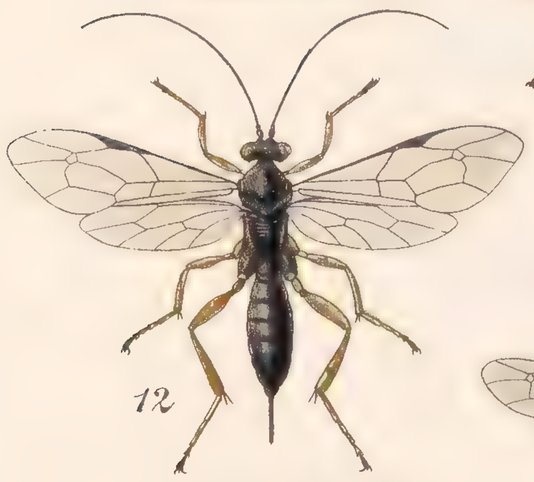
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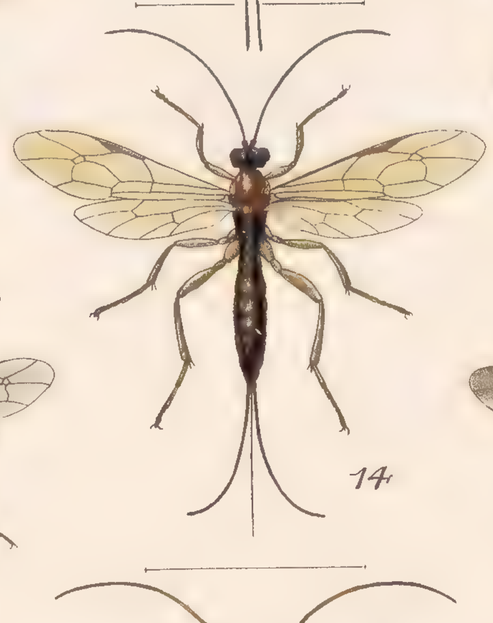
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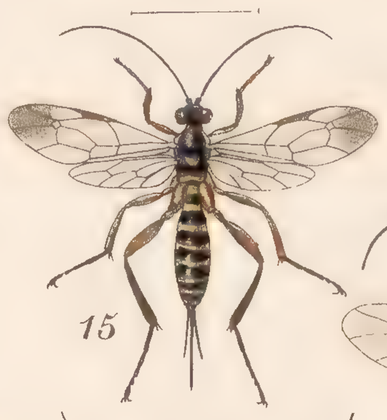
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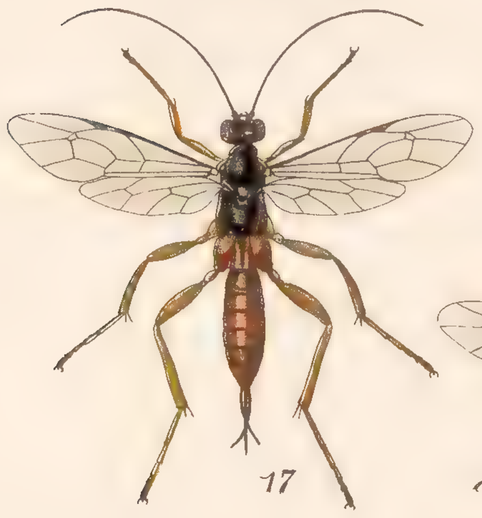
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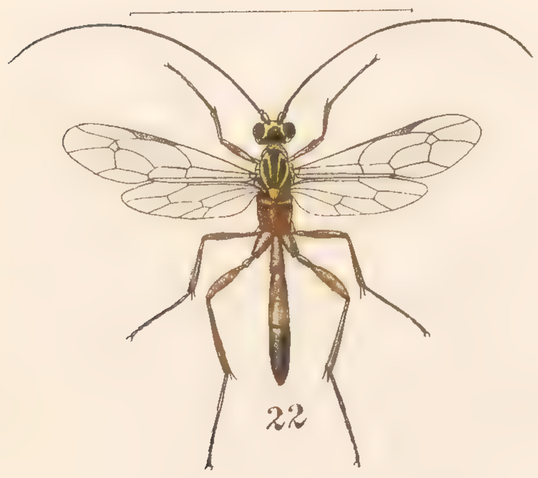
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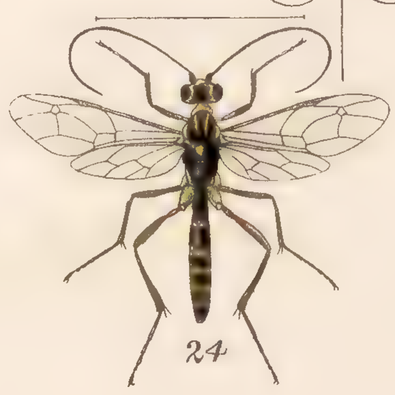
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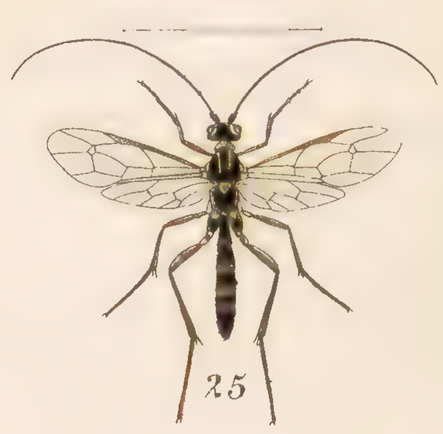
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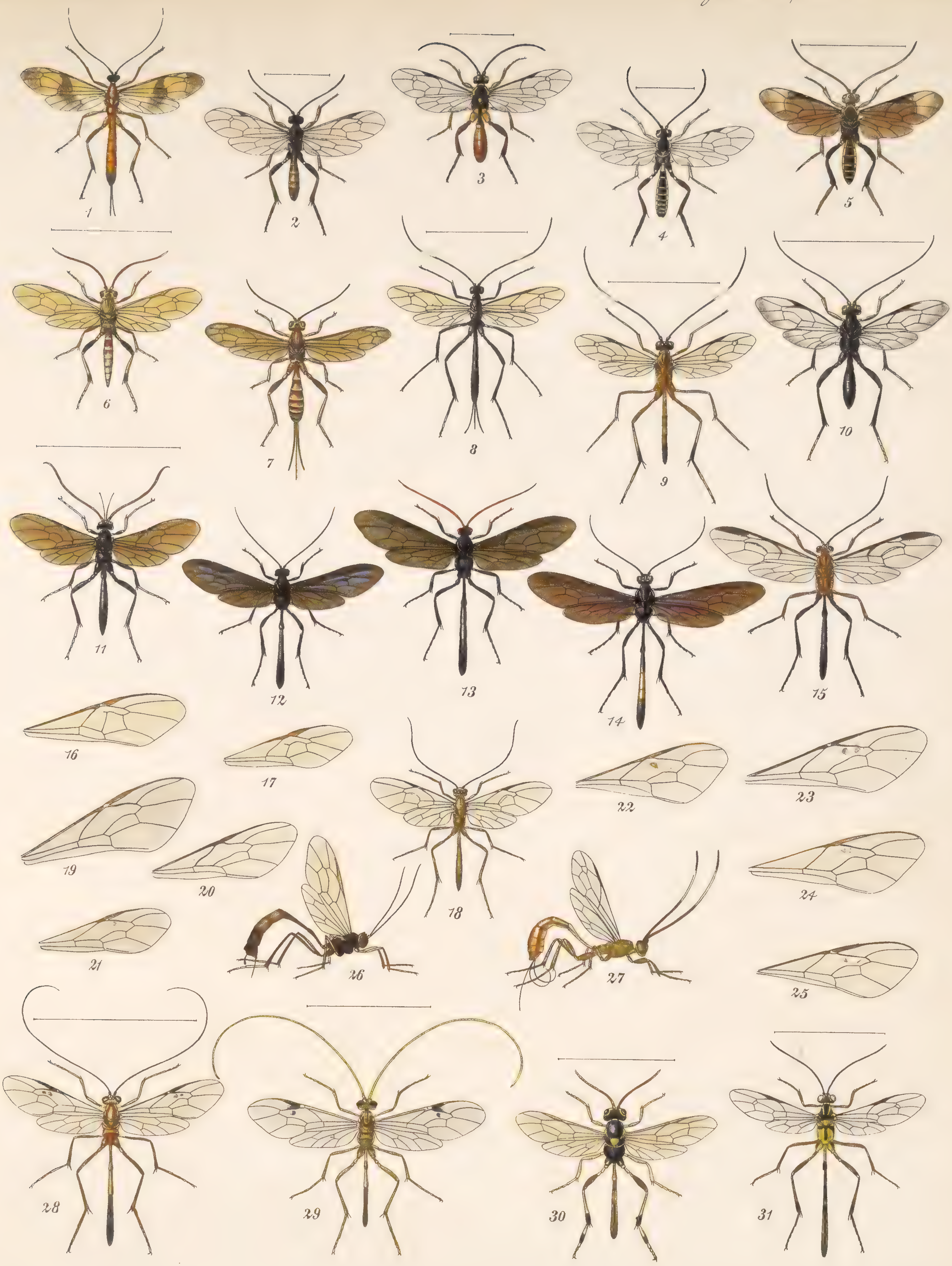
1 EPHIALTES ANNULICORNIS.
2 EPIRHYSSA MEXICANA.
3 RHYSSA NIGRITARSIS.
4 THERONIA LINEATA.
5 EPHIALTES NIGRICANS.
6 THERONIA CHIRIQUENSIS.
7 EXOCHUS STRAMINEIPES.
8 BASSUS FRONTALIS.
9 PIMPLA XANTHOSTIGMA.
10 „ SEDULA.
11 ODONTOPIMPLA PULCHERRIMA.
12 PIMPLA CROCEIPES.
13 LIMNERIA ALBISPINA.
14 PIMPLA COXATOR.
15 „ ALBOMARGINATA.
16 „ PUNICIPES.
17 „ ARGENTIFRONS.
18 GLYPTA RUFOMARGINATA.
19 LISSONOTA ALBISPINA.
20 „ LEUCOPODA.
21 PHYTODIETUS GUATEMALENSIS.
22 MESOLEPTUS MEXICANUS.
23 METOPIUS FEMORATUS.
24 MESOLEPTUS ALPESTRIS.
25 „ PERSIMILIS.

W. Purkiss lith. Hanhart imp.
403.

KODAK Color Control Patches © The Tiffen Company, 2000
Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black
Centimeters Inches



1 EPIMECIS TIBIALIS.
2 TRYPHON MONTEZUMA.
3 POLYBLASTUS (?) AZTECUS.
4 MESOLEIUS MONTEZUMA.
5 SCOLOBATES (?) VARICORNIS.
6 BANCHUS MEXICANUS.
7 LABENA GRALLATOR.
8 NONUS NIGER.
9 " ANTENNATUS.
10 RETANISIA FACIALIS.
11 AGATHOPHIONA FULVICORNIS.
12 THYREDON NIGER.
13 " ERYTHROCERA.
14 " LATICINCTUS.
15 " RUFOTHORAX.
16 OPHION FLAVO-ORBITALIS.
17 " ANCYLONEURA.
18 " MELANOSTIGMA.
19 " CURVINERVIS.
20 " CHIRIQUENSIS.
21 " FLAVUS.
22 OPHION GUATEMALENSIS.
23 " MEXICANUS.
24 " CONCOLOR.
25 " THORACICUS.
26 ANOMALON GUATEMALENUM.
27 GROTEA FULVA.
28 OPHION MONTICOLA.
29 " MACULIPENNIS.
30 HETEROPELMA SONORENSIS.
31 EPHIOSOMA MEXICANUM.

W. Purkiss lith.

Hanhart imp.
416.

Inches 1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Centimetres
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak
LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black

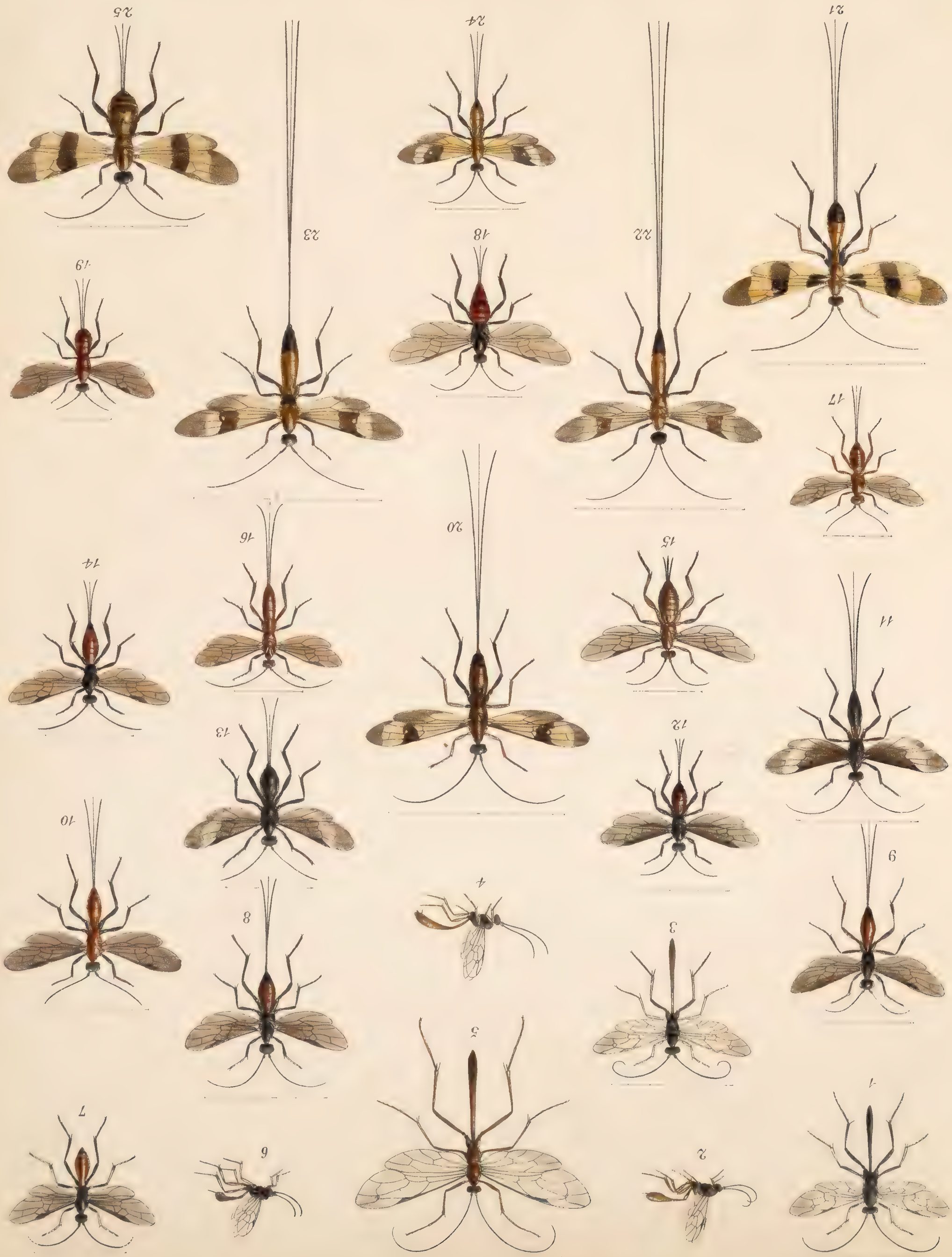
1 CAMPOPLEX TEPANECUS.
2 " DIVISUS.
3 " VERAEPACIS.
4 " MEXICANUS.
5 PANISCUS GEMINATUS.
6 LIMNERIA SONORENSIS.
7 BRACON ALBIPALPIS.
8 " FRUSTRATUS.

9 BRACON GRACILESCENS.
10 " BUGABENSIS.
11 " COMPUNCTOR.
12 " DISTINGUENDUS.
13 " APICIPENNIS.
14 " SEDULUS.
15 " ALBISPINA.
16 " MONTIVAGUS.
17 " BLANDICUS.

18 BRACON MORRISONI.
19 " DEMOCRATICUS.
20 IPHIAULAX NIGRICEPS.
21 " EXALTATUS.
22 " ROGERSI.
23 " PULCHRIPENNIS.
24 " LACHRYMOSUS.
25 " EROS.

W. Purkiss lith.

Hanhart imp.
427.



Biol. Centr. Am. Hymenoptera. Vol. 2.

Inches 1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Centimetres
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak
LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black

1 ♀ IPHIAULAX GLORIATORIUS .
2 ♀ " ZAPOTENSIS .
3 ♀ " PULCHRIPES .
4 ♀ " CHAMPIONI .
5 ♀ " HECTOR .
6 ♀ " CALDERENSIS .
7 ♀ " GODMANI .
8 ♀ " GUATEMALENSIS .

W.Purkiss lith.

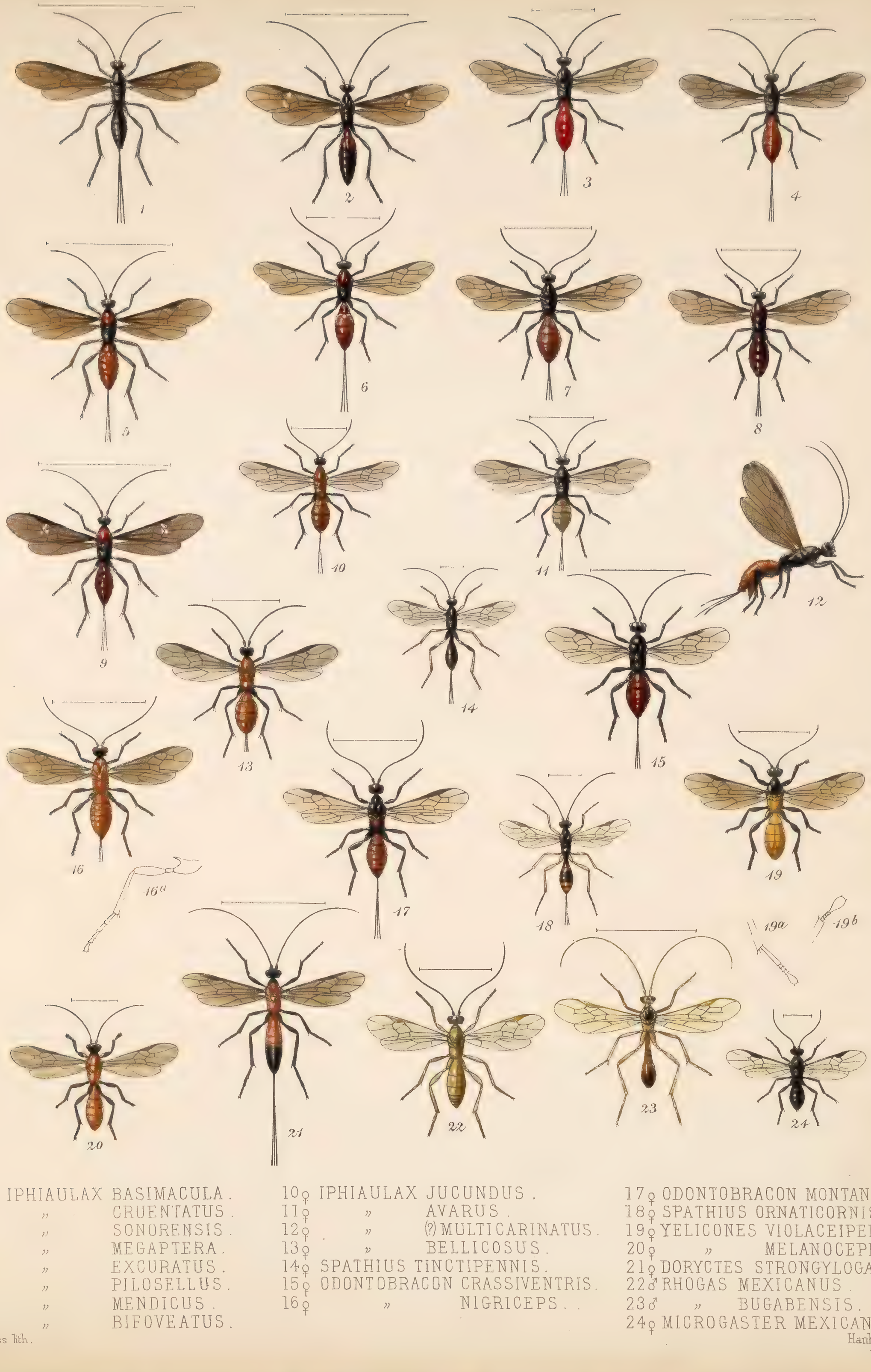
9 ♀ IPHIAULAX PILIVENTRIS .
10 ♀ " AZTECUS .
11 ♀ " ARGENTIFRONS .
12 ♀ " MONTEZUMA .
13 ♀ " IMITATRIX .
14 ♀ " HUMEROSUS .
15 ♀ " VEREPACIS .
16 ♂ " TINCTIPENNIS .
17 ♀ " LÆVIS .

18 ♀ IPHIAULAX BEATUS .
19 ♂ " FUSCIDENS .
20 ♀ " VAGABUNDUS .
21 ♀ " SALVINI .
22 ♀ " MOLESTUS .
23 ♀ " ABACULUS .
24 ♂ " CAPETILLENSIS .
25 ♂ " QUADRIPUNCTATUS .

Hanhart imp.
434

Biol. Centr. Am.

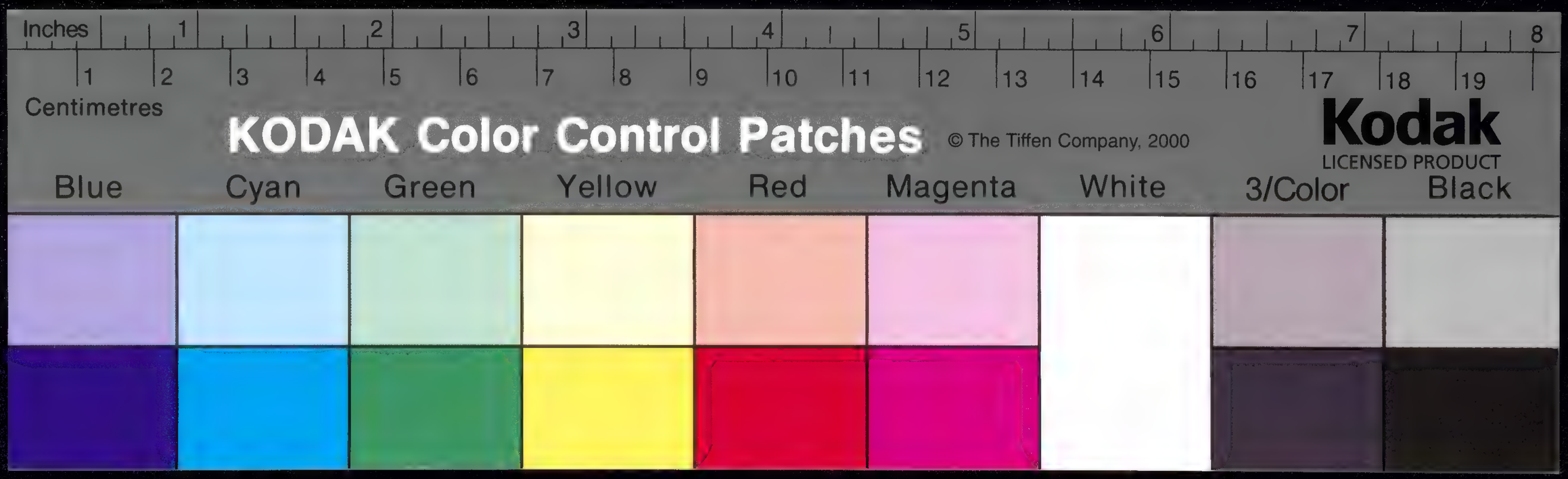
Hymenoptera. Vol. II.



1 ♀,2 ♂ IPHIAULAX BASIMACULA.
3 ♀ „ CRUENTATUS.
4 ♀ „ SONORENSIS.
5 ♀ „ MEGAPTERA.
6 ♀ „ EXCURATUS.
7 ♀ „ PILOSELLUS.
8 ♀ „ MENDICUS.
9 ♀ „ BIFOVEATUS.
10 ♀ IPHIAULAX JUCUNDUS.
11 ♀ „ AVARUS.
12 ♀ „ (?) MULTICARINATUS.
13 ♀ „ BELLICOSUS.
14 ♀ SPATHIUS TINCTIPENNIS.
15 ♀ ODONTOBRACON CRASSIVENTRIS.
16 ♀ „ NIGRICEPS.
17 ♀ ODONTOBRACON MONTANUS.
18 ♀ SPATHIUS ORNATICORNIS.
19 ♀ YELICONES VIOLACEIPENNIS.
20 ♀ „ MELANOCEPHALUS.
21 ♀ DORYCTES STRONGYLOGASTER.
22 ♂ RHOGAS MEXICANUS.
23 ♂ „ BUGABENSIS.
24 ♀ MICROGASTER MEXICANUS.

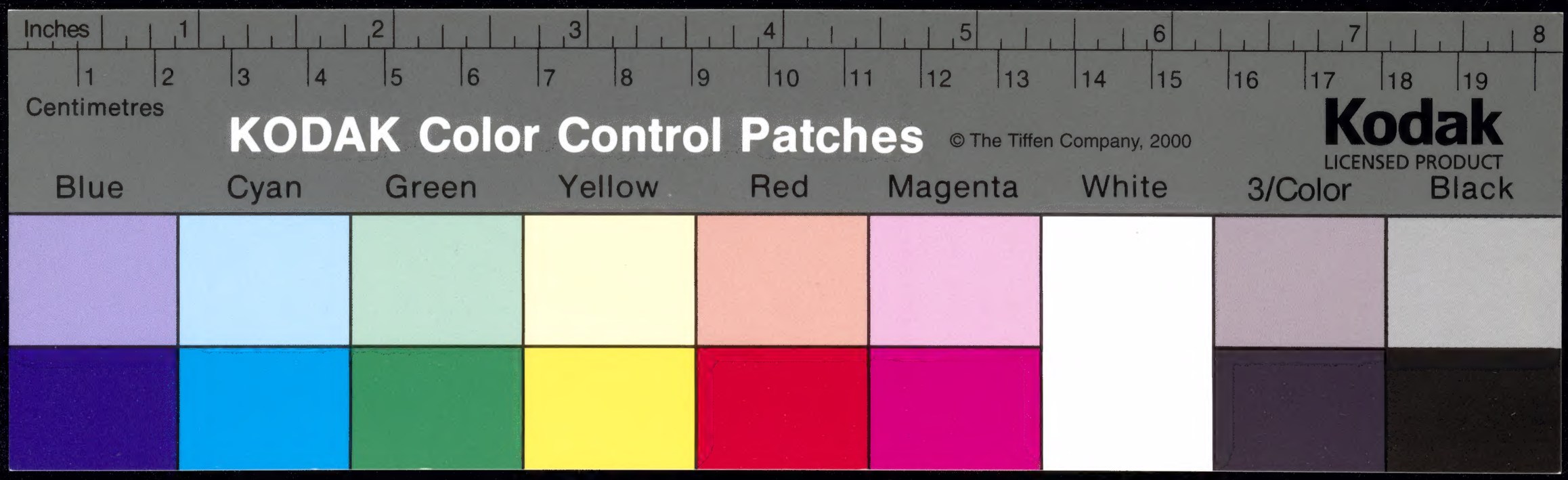
W. Purkiss lith.
Hanhart imp.

KODAK Color Control Patches © The Tiffen Company, 2000 Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black
Inches 1 2 3 4 5 6 7 8
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19



1♂ RHOGAS SONORENSIS.
2♀ LELUTHIA MEXICANA.
3♀ " FUSCINERVIS.
4♀ CHELONUS SONORENSIS.
5♀ " QUADRIMACULATUS.
6♀ " BASIMACULA.
7♂ AGATHIS CHIRIQUENSIS.
8♀ " VIOLACEIPENNIS.
9♀ AGATHIS CRESSONI.
10♂ " ALBISPINA.
11♀ " FERRUGINEUS.
12♂ MICRODUS CHAMPIONI.
13♀ AGATHIS TIBIALIS.
14♀ MICRODUS SIMULATRIX.
15♂ " MELANOSTOMA.
16♂ " PERONATUS.
17♀ " FEMORATUS.
18♀ MICRODUS MONTIVAGUS.
19♀ " BASIMACULA.
20♀ EARINUS ERYTHROPODA.
21♂ OLIXON TESTACEUM.
22♂ ALYSIA LONGICORNIS.
23♂ " XANTHOPTERA.
24♂ " PULCHRIPENNIS.
25♂ " ERYTHROGASTER.

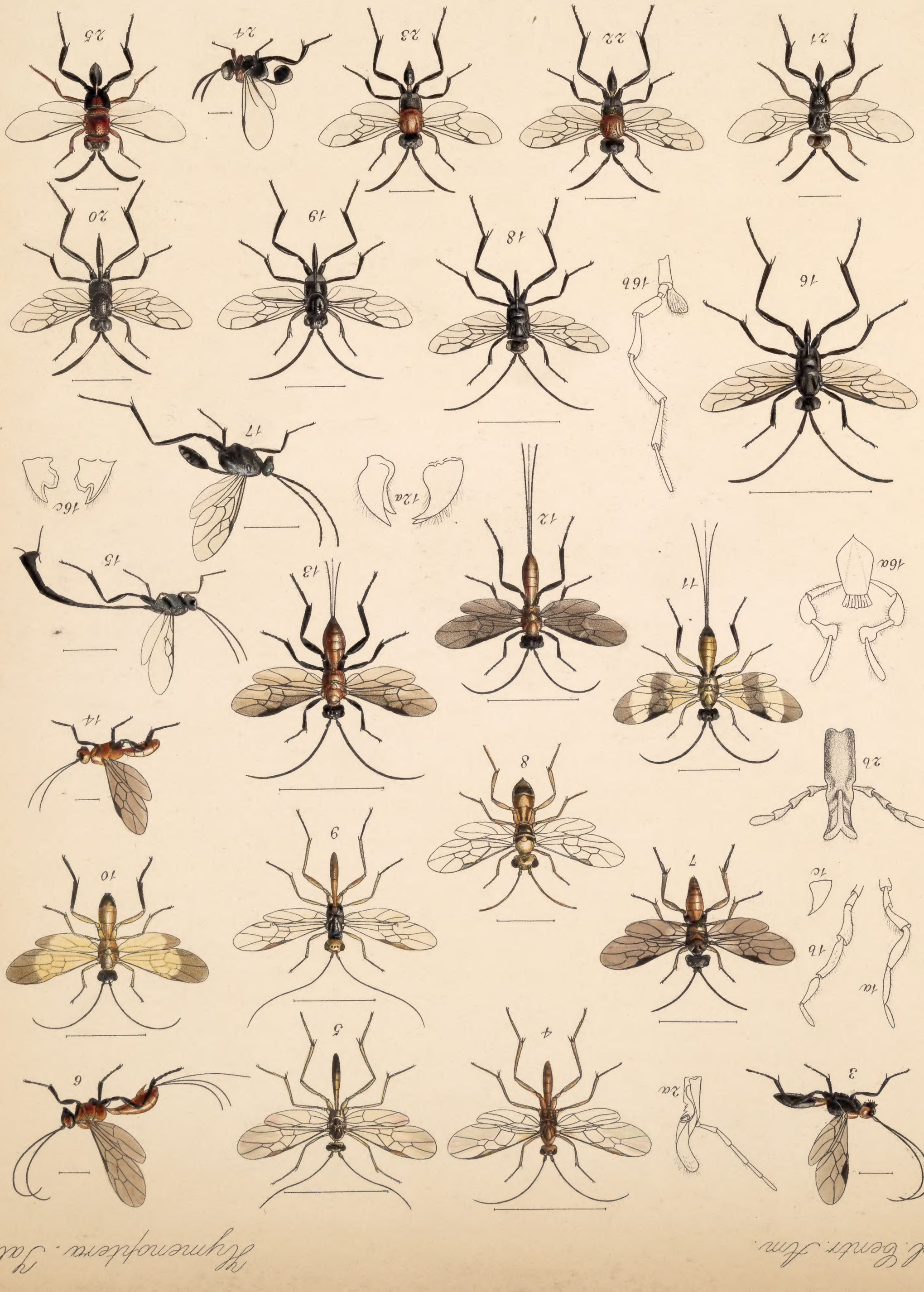
W. Purkiss lith. Barnard imp. 448



1a–c RHOGAS BUGABENSIS .
2a,b MICRODUS SIMULATRIX .
3♂ ALYSIA CHAMPIONI .
4 ZELE FUSCICORNIS .
5♂ MACROCENTRUS DELICATUS ?
6♀ BRACON (?) ALBIPALPIS .
7 TOXONEURON SEMINIGRUM .
8 " CROCEUM .
9♀ CENOCELIUS FILICORNIS .
10 " PULCHER .
11♀ " ORNATIPENNIS .
12,12a♀ " CHONTALENSIS .
13♀ " NIGRICEPS .
14♀ OPIUS MEXICANUS .
15♀ PHARSALIA ALBOFACIALIS .
16,16a–c EVANIA TINCTIPENNIS .
17 " ALBOFACIALIS .
18 EVANIA ALBISPINA
19 " RUGIFRONS .
20 " ORNATICORNIS .
21 " MARGINATA .
22 " VARICORNIS .
23 " TROCHANTERATA .
24 " DORSALIS .
25 " RUGOSA .

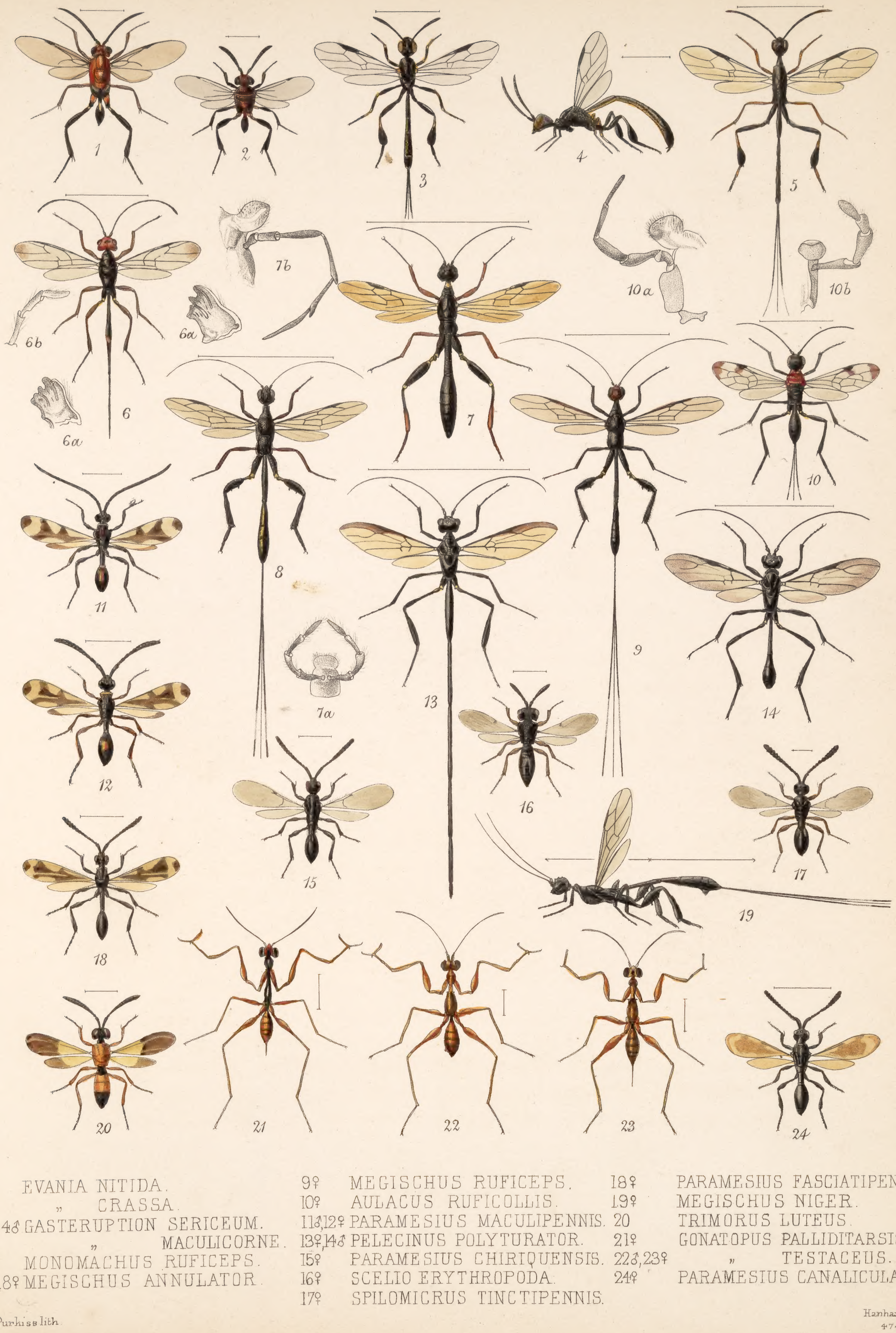
W. Purkiss lith.

Hanhart imp. 464.



Brit. Rentr. Hym.

Hymenoptera. Pl. 17



1♂ EVANIA NITIDA.
2♂ " CRASSA.
3♀,4♂ GASTERUPTION SERICEUM.
5♀ " MACULICORNE.
6♀ MONOMACHUS RUFICEPS.
7♂,8♀ MEGISCHUS ANNULATOR.
9♀ MEGISCHUS RUFICEPS.
10♀ AULACUS RUFICOLLIS.
11♂,12♀ PARAMESIUS MACULIPENNIS.
13♀,14♂ PELECINUS POLYTURATOR.
15♀ PARAMESIUS CHIRIQUENSIS.
16♀ SCELIO ERYTHROPODA.
17♀ SPILOMICRUS TINCTIPENNIS.
18♀ PARAMESIUS FASCIATIPENNIS.
19♀ MEGISCHUS NIGER.
20 TRIMORUS LUTEUS.
21♀ GONATOPUS PALLIDITARSIS.
22♂,23♀ " TESTACEUS.
24♀ PARAMESIUS CANALICULATUS.

W. Purkiss lith.
Hanhart imp.

KODAK Color Control Patches © The Tiffen Company, 2000
Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black
Inches 1 2 3 4 5 6 7 8
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

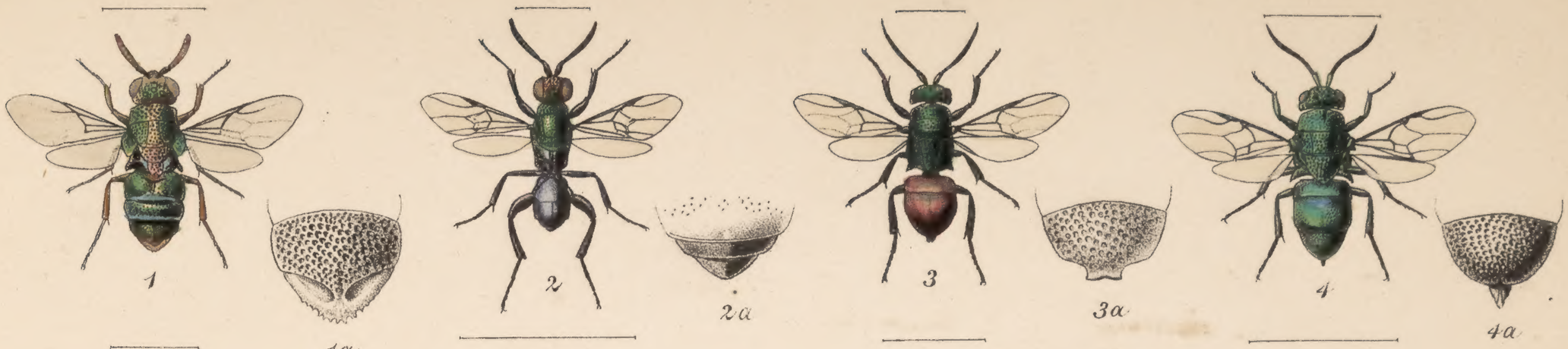
1 GONATOPUS ALBOMARGINATUS.
2 " " DROMEDARIUS.
3 " ORBITALIS.
4 " APICALIS.
5 DRYINUS MACULICORNIS.
6 " ALTICOLA.
7 " RUFICEPS.
8 " NIGRICANS.
9 " CHIRIQUENSIS.
10 DRYINUS ALBITARSIS.
11 APENESIA FLAVIPES.
12 EPYRIS RUGIERONS.
13 " MULTICARINATUS.
14 " ERYTHROPODA.
15 DRYINUS MELANOCEPHALUS.
16 EPYRIS VIRIDIS.
17 " NITIDICEPS.
18 EPYRIS TESTACEIPES.
19 " BUGABENSIS.
20 " GUATEMALENSIS.
21 PARASIEROLA LATA.
22 " PALLIDITARSIS.
23 " OPACA.
24 MESITIUS LONGICOLLIS.
25 CALYOZA WESTWOODI.
26 DRYINUS MELANOCEPHALUS, var.

W. Purkiss lith.

Hanhart imp
482.

Hymenoptera. Tafel 19.

Basel, Georg'sche Anst.



1,1a PARNOPES FULVICORNIS.
2,2a AMISEGA CUPRIFRONS.
3,3a NOTOZUS NITIDUS.
4,4a HEDYCHRIDIUM GUATEMALENSE.
5,5a " MILIARE.
6,6a CHRYSIS PARVULA.
7,7a " QUADRITUBERCULATA.
8,8a " PANAMENSIS.
9,9a CHRYSIS SONORENSIS.
10,10a " MEXICANA.
11,11a " CŒRULANS.
12,12a " PROXIMA.
13,13a " PILIFRONS.
14 HYLOTOMA BASIMACULA
15 STRONGYLOGASTER FUMIPENNIS.
16 HEMICHROA NIGRICANS.
17 EUURA MEXICANA.
18 PTILIA CRASSULA.
19 " NIGERRIMA.
20 IBALIA RUFICOLLIS.
21 AULAX RUFIPES.
22 ANACHARIS MEXICANUS.
23 APHILOTHRIX(?) AZTECUS.
24 TRIGONALYS CHAMPIONI.

W. Purkiss lith.

Hanhart imp.
489.

KODAK Color Control Patches © The Tiffen Company, 2000
Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black
Centimeters 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Inches 1 2 3 4 5 6 7 8